Hunterian Lecture

ON

THE OPERATIVE TREATMENT OF CLEFT PALATE.

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BY H. BLAKEWAY, M.S. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR AT THE COLLEGE; SURGICAL REGISTRAR, ST. BARTHOLOMEW'S HOSPITAL; SURGEON, WITH CHARGE OF OUT-PATIENTS, VICTORIA HOSPITAL FOR CHILDREN; ACTING ASSISTANT SURGEON, ROYAL FREE HOSPITAL.

(*Concluded from p. 482.*)

RESULTS IN 100 CONSECUTIVE CASES TREATED BY LANE'S OPERATION.

THE discussions of the subject during the last 10 years or so have brought forth many appeals for evidence as to the alleged advantages of the flap operation, and it has become urgently desirable that statistics should be produced, and that such figures should supply, not merely the immediate results of the operation, but also the ultimate results as seen at intervals of several years after its performance. I desire especially to acknowledge my indebtedness to Sir Arbuthnot Lane and to the authorities at Great Ormond-street Hospital, through whose kindness I have been enabled to investigate 100 consecutive cases treated by this method. (Table III.)

These patients were operated upon between April, 1905, and January, 1907. They have been traced, and, if possible, seen at intervals after the operation varying between approximately 5 and 9½ years. After such intervals conclusions may justly be drawn as to the effect of the operation upon the speech as well as upon the healing of the palate.

The cases may be summarised as follows: Males, 48; females, 52. Of these 100 cases 87 have been traced, and of these 40 have been seen; 1 of these has since died. Of the remaining 47 cases, 33 are dead, and in 14 the result of the treatment was ascertained by correspondence.

The ages of the patients at the time of the first operation varied from 1 day to 11 years, but 79 of the children were under the age of 1 year.

The cases showed the following degrees of severity:—

Complete cleft of hard and soft palates	35 cases.
Cleft of soft and part of hard palate	45 ,,
Cleft of soft palate only	11 ,,
Congenital central cleft of palate	1 case.

In the remaining 8 cases the extent of the cleft was not stated in the notes and could not afterwards be determined.

Mortality of the Operation.

Of the children 33 died. It is impossible always to write with certainty as to the cause. While some of the deaths were certainly due to the operation, and others as certainly not, there remain cases in which differences of opinion might arise as to the part which the operation played in producing the fatal result. Since cases were not excluded on account of malnutrition, of necessity some deaths are recorded as due to the operation which would almost certainly have occurred even if no operation had been performed. Allusion has already been made to the importance of this factor of difference in the results obtained at different hospitals and by different surgeons.

Of the 33 deaths 19* are judged to have been due to the operation; 13 of these resulted from first operations and 6 from second or later operations.

In estimating the mortality of the treatment attention must be paid not only to the deaths resulting from first operations, but to the death-rate of any necessary secondary operations as well. Since at least 40 per cent. of the series required secondary operations the mortality of the treatment cannot be less than 13 + 3·2—i.e., 16·2 per cent. (there were 75 secondary operations, with 6 deaths, a mortality for secondary operations alone of 8 per cent.); and it must actually be somewhat greater than this because many of the patients were exposed to the 3·2 per cent. risk several times (some of the patients underwent as many as five or six operations). It is fair to point out, however, that many of these children had a harelip operated upon at the same time as the cleft palate, and it is uncertain to what extent the operation on the lip contributed to the child's death; at any rate, operations on bad cases of harelip have a mortality of their own.

There is no great dissimilarity in the mortality rate for operations upon the different classes of cleft until we come to clefts of the soft palate only; in these the mortality is distinctly lower than in the more severe cases.

For complete clefts there were—

35 primary operations, with 5 deaths = 14·28 per cent.
33 secondary ,, ,, 3 ,, = 9·0 ,, ,,

For clefts of soft and part of hard palate there were—

45 primary operations, with 6 deaths = 13·3 per cent.
39 secondary ,, ,, 1 death = 2·56 ,, ,,

For clefts of soft palate only there were—

11 primary operations, with 1 death = 9·0 per cent.

The secondary operations for clefts of the soft palate were too few for conclusions to be drawn from them.

One death from a primary operation and one after a secondary one occurred in cases in which the extent of the cleft was not stated in the notes.

Probably the above data represent the mortality from secondary operations at rather too high a figure, for almost certainly some cases underwent a larger number of secondary operations than appeared in reading the notes of a limited period of years. As regards the causes of death, pneumonia and diarrhœa and vomiting had the chief share.

It is instructive to note that in 9 cases death took place shortly after the child had returned home; and further, in view of the statement that operations for cleft palate in early infancy are not attended with special danger, that among 44 first operations for all varieties of cleft, under the age of 3 months, 9 were fatal, a percentage of 20·45; whereas of 56 first operations upon children over that age only 4 resulted fatally, a percentage of 7·14. It must be borne in mind that it is for use in early infancy that the operation has been specially designed. Of lesser complications 2 cases (Nos. 74 and 76) of recurrent hæmorrhage occurred.

We have next to consider

The Results as regards Closure of the Cleft.

Reliable data as to this point can only be obtained by confining attention to the patients who have been seen. Although the parents of the children could perhaps be trusted to note correctly whether the hard palate was or was not completely healed, experience showed the futility of trusting to their statements about the soft palate.

* Cases 9, 19, 26, 33, 35, 43, 46, 50, 52, 58, 60, 78, 83, 90, 91, 94, 97, 98, and 100.

The results in these 40 cases were as follows:—

(*a*) 15 cases of complete cleft of hard and soft palates:—

Complete closure...	After one operation	3
	,, more than one operation ...	4
Partial closure ...	After one operation	2
	,, more than one operation ...	6

(*b*) 19 cases of cleft of soft and part of hard palate:—

Complete closure...	After one operation	4
	,, more than one operation ...	4
Partial closure ...	After one operation	
	,, more than one operation ...	4
Failure	After one operation	
	,, four operations	1

(*c*) 6 cases of cleft of the soft palate only:—

Complete closure...	After one operation	3
Partial closure ...	After one operation	3

Several of the cases described as "partial closure" have only small holes left, the rest of the palate being completely healed.

The Manner of Healing: Effect on the Teeth.

More must be said about the manner of the healing. It has been objected to the flap operation that its method of performance necessarily leads to a large raw surface being left, with such scarring as a result as will generally lead to a short and stiff and functionally imperfect soft palate. In this series, where the hard palate has been operated upon, it has generally shown scarring; in the case of the soft palate this is by no means uniformly the case; several of the patients have well-formed and movable soft palates, with little or no evidence of scarring. This is doubtless due to the device of covering part of the raw surface of the main flap by a second flap derived from the nasal surface of the other half of the soft palate. But in more cases than these the soft palate as well as the hard is scarred, shortened, and its mobility is interfered with.

A result of scarring in the hard palate is sometimes seen in interference with the teeth. It is to be expected that in the case of wide complete clefts—when the flap has been taken not only from the palate but also from the alveolar process—damage might result to the underlying teeth, which are not, of course, protected by bone below. Examination of the cases in this series in which it is most likely that the flap may have been so formed—i.e., children with complete clefts operated upon at or under the age of 6 months—shows that in the majority the temporary teeth are very faulty. In one case (No. 30), seen at the age of 6 years, there were no upper teeth present; while in another (No. 27), at the age of 6½ years, the only teeth present were two incisors in the still much displaced premaxilla, and the two first permanent molars, which were healthy. In most of the cases the teeth showed caries, variable in degree, but in a few they were good.

The permanent teeth apparently escape damage; in many of the cases the first permanent molars were found healthy, and several of the children were old enough to show other healthy permanent teeth. Case 4 is a good example. This boy had a complete cleft palate with left harelip; his first operation was at the age of 3 months. Seen when 6 years old, he possessed in his upper jaw only the two sound first permanent molars and a displaced central incisor; seen again at the age of 10, three other permanent teeth had appeared; these were all sound. (Fig. 1.)

The teeth may be affected in another way, even when the alveolar process has not been encroached upon in making the flap. If much scarring occurs in the healing of the hard palate the contracting scar tissue may draw inwards one or more of the teeth. Such scarring is of course most likely to occur on the side from which the flap has been raised, since a raw surface is left here; but on the opposite side also, if any extensive raising of the mucoperiosteum from the bone has been done, cicatrisation and consequent displacement of the teeth may also occur. The condition may therefore follow Langenbeck's operation, as has been shown by Berry. Several instances were found in the series of cases under discussion.

Fig. 2 shows an extreme case; it represents the palate of a girl, aged 15 (Case 59), who had been operated on at the age of 7 for a cleft of the soft and the posterior three-fourths of the hard palate. Much scarring of the hard palate resulted, with displacement inwards of five of the teeth; the soft palate is short on the left side, but moves fairly. The patient speaks badly, probably owing in part to the condition of the teeth.

The next drawing (Fig. 3) shows displacement inwards of a second bicuspid tooth. The patient, a boy aged 12, had had a cleft of the soft and the posterior fourth of the hard palate operated upon at the age of 2 years and 8 months. The posterior part of the hard palate is scarred, and opposite the displaced tooth there remains a tiny hole. The soft palate, apart from a cleft uvula, is good, and the child spoke fairly, though with a distinctly nasal intonation.

Case 73, shown in Fig. 4, had had two operations, respectively at 13 months and 5½ years, for a cleft involving the soft and the posterior two-thirds of the hard palate. A small hole remains in the hard palate, with scarring around, and the left side of the alveolar arch is pulled inwards. The soft palate is short and moves little; the speech is poor.

A similar flattening of the alveolar arch on the right side is shown by Case 69 (Fig. 5). The cleft, operated upon at the age of 10 months, had been complete, but without harelip. Several teeth on the right side are displaced inwards; the palate is healed, but the soft palate is short and moves very moderately. Speech is fairly good, though nasal.

Condition of Speech.

In considering the effect of the treatment upon the speech account has again only been taken of the results in the 40 patients who have been seen. None of the patients received skilled training after the operation; and the expression of the results is of course to a considerable extent a matter of individual opinion. In tabulating them the cases have been classified according to the extent of the cleft, and the speech has been recorded as either (1) good, (2) fair, or (3) poor or bad.

(*a*) In 15 cases of complete cleft of hard and soft palate—

The speech was good in	1	case.
,, ,, fair in	3	cases.
,, ,, poor or bad in	11	,,

In only 3 of these last 11 cases was the palate completely healed, and 9 of them, including these 3, had undergone more than one operation.

(*b*) In 19 cases of cleft of soft and part of hard palate—

The speech was good in	2	cases.
,, ,, fair in	4	,,
,, ,, poor or bad in	13	,,

Only 4 of the 13 "bad" cases had the palate completely healed, and 7 had undergone more than one operation.

(*c*) In 6 cases of cleft of soft palate only—

The speech was good in	3	cases.
,, ,, fair in	1	case.
,, ,, poor or bad in	2	cases.

Of the 3 cases who spoke well 2 had obtained complete healing after only one operation, and in the third case only a tiny hole remained.

All of these had well-formed and movable soft palates. Fig. 6 represents the palate of Case 8, 9½ years after operation; there is no scarring, and the soft palate, even to the

TABLE III.—*100 Consecutive Cases of Cleft Palate treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results.*

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
1	M., 7 mos.	Soft palate.	April 25th, 1905.	Complete closure.	Well-formed and freely movable soft palate.	Good. Trouble with *th* and *s*. No special training.	Seen Sept., 1911. (Recently dead.)
2	M., 3 mos.	Not stated.	April 25th, 1905.	Not stated.	Cannot be traced.		—
3	M., 7 days.	Complete; right harelip.	1. April 28th, 1905. 2. July 21st, 1905. 3. May 8th, 1906. 4. June, 1907 (lip only). 5. Dec. 10th, 1907.	Partial closure.	Hard palate healed; surface very irregular, especially on right side, owing to scarring. Soft palate almost absent; remnants seen on each side are slightly movable.	Poor; ordinary speech usually unintelligible, but separate words can be understood. Most trouble with *b*, *d*, *s*, *th*, *z*, *g*.	Seen July, 1911.
4	M., 3 mos.	Complete; left harelip.	1. May 2nd, 1905. 2. Jan. 11th, 1907. 3. , 1907 (lip only).	—	Palate healed; arch almost absent. Soft palate moderately movable; uvula absent. Teeth: Only five present in upper jaw; these are sound. (Fig. 1)	Fair; intelligible if he talks slowly. Trouble with *s*, *r*.	Seen Dec., 1914.
5	F., 8 wks.	Complete; left harelip.	1. May 19th, 1905. 2. Oct. 24th, 1905.	Small hole left. Hole closed.	Hard palate healed; a carious milk tooth is displaced inwards on to left side of palate. Soft palate: Only most anterior part is joined.	Bad; usually unintelligible and very nasal. Special trouble with *b*, *d*, *th*, hard *g*, *s*.	Seen Feb., 1912.
6	F., 2 mos.	Soft, and most of hard palate.	1. May 19th, 1905. 2. Oct. 24th. 1905. 3. Mar., 1906. 4. Jan. 25th, 1907.	—	Hard palate healed, but very lumpy and scarred. Soft palate short, uvula to left; moves very little.	Fair; usually quite intelligible, though nasal. Has been carefully trained by parents.	Seen Sept., 1912.
7	M., 7 yrs.	Not stated.	May 19th, 1905.	Not stated.	Cannot be traced.		—
8	M., 7 mos.	Soft palate.	June 6th, 1905.	Complete closure.	Well formed, moderately movable soft palate. (Fig. 6.)	Very good, almost perfect. No special training.	Seen Jan., 1915.
9	M., 6 wks.	Cleft palate and harelip.	June 16th, 1905.	—	Death June 18th, 1905.		—
10	F., 3 mos.	Soft, and a small part of hard palate.	June 16th, 1905.	Not stated.	Healed; not much scarring. Soft palate moves badly.	Poor; very nasal.	Seen Jan., 1915.
11	F., 5½ mos.	Soft palate.	June 20th, 1905.	Not stated.	Hole, admitting a probe, at junction of soft and hard palates, in middle line. Soft palate movable; its posterior border is oblique, so that palate is short on right side.	Intelligible with difficulty; special trouble with *j*, *th*, *s*, *z*, *r*, *sc*.	Seen Sept., 1911.
12	M., 8 mos.	Hard and soft.	1. June 23rd, 1905. 2. Nov. 17th, 1905. 3. Nov. 23rd, 1906.	Part of soft palate healed. Held well.	"There is a hole in front part of palate. Teeth in upper jaw are rotten."	"Bad. Has had no special training."	Letter from father Sept., 1911.
13	M., 6 yrs.	Soft, and half of hard palate.	1. July 7th, 1905. 2. May 1st, 1906	Small hole left.	Healed; soft palate moderately movable; its posterior border is oblique, making the palate very short on right side. Uvula drawn to right.	Poor; many words quite unintelligible, though many are fairly pronounced; worst trouble with *p*, *b*, *t*, *d*, *k*, *g*. Intelligent boy.	Seen Sept., 1911.
14	M., 10 mos.	Complete; double harelip.	July 7th, 1905. Lip closed Jan., 1906.	Complete closure.	"Palate healed, though narrower than ordinary. Teeth good."	"His teacher can understand, as can home folk, strangers not. Has not had special training."	Letter from father Oct. 23rd, 1911.
15	M., 9 mos.	Complete; right harelip.	July 7th, 1905. Lip closed July 19th, 1905.	Complete closure.	Cannot be traced.		—
16	F., 1¾ yrs.	Not stated.	July 11th, 1905.	Not stated.	Cannot be traced.		—
17	F., 9 mos.	Soft palate.	July 18th, 1905.	Complete closure.	Soft palate well-formed—good uvula. Tiny hole on right side at junction of hard and soft palates.	Good; trouble with *r*. No special training.	Seen Sept., 1911.
18	M., 11 wks.	Complete; left harelip.	July 25th, 1905.	Not stated.	Cannot be traced.		—
19	F., 10 mos.	Soft palate.	July 28th, 1905.	Palate healed.	Death Aug. 24th, 1905. Child wasted continuously after operation—was much worse than before.		Conversation with woman who nursed the child in its illness.
20	F., 2 mos.	Soft, and posterior two-thirds of hard palate.	1. 1905. 2. Dec. 1st, 1905.	—	Incomplete closure. Another operation would have been performed, but child died on Good Friday, 1906, after an acute illness of 4 days' duration.		Mother seen Sept., 1911.
21	F., 4 yrs.	Soft, and posterior two-thirds of hard palate.	1. Sept. 1st, 1905. 2. ? date. 3. Oct. 7th, 1906. 4. Jan. 25th, 1907.	Failure. Failure. Partial closure. Collapse and vomiting after operation.	Cannot be traced.		—
22	F., 5 wks.	Soft palate.	Oct., 1905.	Complete closure.	Soft palate healed, not movable. Well-formed uvula.	Poor, scarcely intelligible; special trouble with *l*, *th*, *r*, *l*.	Seen Sept., 1911.
23	M., 4 mos.	Complete; double harelip.	1. Oct. 16th, 1905. 2. Jan. 30th, 1906.	Anterior part closed. Complete closure.	Cannot be traced.		—
24	F., 11 mos.	Soft, and posterior ¼ inch of hard palate.	Oct. 6th, 1905.	Complete closure.	Cannot be traced.		—
25	F., 9 mos.	Soft, and posterior half of hard palate.	Oct. 12th, 1905.	Posterior quarter only healed.	Child died in hospital Jan. 3rd, 1906. Was ill continuously from time of operation until death.		Father seen June, 1912.
26	F., 18 mos.	Soft, and posterior two-thirds of hard palate.	Oct. 26th, 1905.	Palate held.	Death took place a few days after leaving hospital.		Letter from mother Nov., 1911.

TABLE III.—*100 Consecutive Cases of Cleft Palate treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results—(Continued).*

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
27	M., 6 mos.	Complete; double harelip.	1. Oct. 26th, 1905. 2. Feb. 9th, 1906. 3. June 5th, 1906 (lip only).	Anterior half closed. Complete closure. —	Premaxilla projects forwards; large gap between it and front of palate, which is closed except median part of anterior half of hard palate. Soft palate closed, but scarred and short. Teeth absent except two incisors and first permanent molars.	Poor; ordinary speech unintelligible, but some isolated words moderately pronounced.	Seen Nov., 1911.
28	F., 3 mos.	Soft, and posterior two-thirds of hard palate.	1. Oct. 31st, 1905. 2. Jan. 30th, 1906. 3. April 13th, 1906. 4. Dec. 17th, 1906.	— — — Failure.	Operations completely failed; practically no palate left except nodular scar tissue at sides of a huge cleft.	Child very nervous; could only be got to say a few words—these almost unintelligible.	Seen Oct., 1911.
29	M., 2⅔ yrs.	Soft, and posterior quarter of hard palate.	Oct. 31st, 1905.	Complete closure.	Palate healed, except uvula and small hole in hard palate. Soft palate moves fairly. (Fig. 3.)	Fair; distinctly nasal.	Seen Jan., 1915.
30	M., 8 wks.	Complete; double harelip.	1. Nov. 3rd, 1905. 2. Dec. 18th, 1905 (lip only). 3. Mar. 2nd, 1906. 4. May 1st, 1906. 5. Nov. 9th, 1906. 6. July 2nd, 1907. 7. Jan. 14th, 1908.	—	Soft palate absent; hard palate shows a hole, 5 × 4 mm., at anterior part; rest healed, with much nodular scarring. No teeth in upper jaw.	Very bad; generally unintelligible.	Seen Sept., 1911.
31	M., 5 wks.	Soft, and posterior half of hard palate; right incomplete harelip.	Nov. 7th, 1905.	Complete closure.	Death from diarrhœa at age of 11 months.		Letter from father June, 1912.
32	F., 18 mos.	Soft, and posterior half of hard palate.	1. Nov. 14th, 1905. 2. Mar. 7th, 1906. 3. Nov. 23rd, 1906.	Failure. Abscess in neck followed. — Healed.	"Palate is completely closed back and front, but a small hole about middle, which is smaller now than at first."	"Cannot be understood by strangers quite at first, but some are able, and at school she is understood; had no special training. Can read aloud quite plain."	Letter from mother Oct. 23rd, 1911.
33	F., 3 mos.	Soft, and posterior half of hard palate; double harelip.	1. Nov. 21st, 1905. 2. Jan. 26th, 1906.	Partial closure. —	Child died 3 days after return from hospital from pneumonia.		Letter from mother, Oct., 1911.
34	M., 1 mo.	Complete; double harelip.	1. Nov. 21st, 1905. 2. Jan. 26th, 1906.	Anterior two-thirds of cleft closed. Not stated.	Cannot be traced.		—
35	F., 6 wks.	Soft palate.	1. Dec. 1st, 1905. 2. Jan. 23rd, 1906.	Failure. Failure. Very ill with diarrhœa after operation.	Child died, Feb. 22nd, 1906, "in a fit."		Interview with mother Dec., 1914.
36	F., 5 mos.	Cogenital central cleft.	Dec. 13th, 1905.	Complete closure.	Child died May, 1908, from "epilepsy and paralysis." Palate was healed.		Letter from father from Canada, Jan., 1912.
37	M., 3 wks.	Complete; left harelip.	1. Dec. 15th, 1905. 2. Mar. 23rd, 1906. 3. Aug. 29th, 1907 (lip only).	— Hole remained in soft palate. —	Hole on right side, at junction of hard and soft palates. Soft palate very short and very little movable.	Poor, but usually intelligible; trouble especially with *th* and *s*.	Seen Oct., 1911.
38	F., 10 wks.	Soft, and posterior half of hard palate.	Dec. 19th, 1905.	Complete closure (?)	Died at age of 6 months from pneumonia. Was to have had a second operation.		Interview with mother Dec., 1914.
39	M., 4 mos.	Complete; double harelip.	1. Jan. 2nd, 1906. 2. Mar. 13th, 1906 (lip only).	Healed.	Hard palate healed; premaxilla in position but quite loose, with a fissure on each side of it. Soft palate widely cleft; remaining tissues scarred and deformed, and do not move much. Teeth very carious.	Bad; quite unintelligible as a rule and very nasal.	Seen Nov., 1911.
40	M., 6 wks.	Soft, and posterior two-thirds of hard palate 5·8–3·4 in. wide.	1. Jan. 5th, 1906. 2. Mar. 20th, 1906. 3. July 13th, 1906.	— — Healed.	Died from convulsions 7 months after last operation. Palate was completely healed.		Letter from father Dec., 1912.
41	F., 7 wks.	Soft, and posterior two-thirds of hard palate ½ in. wide.	Jan. 5th, 1906.	Healed.	Cannot be traced.		—
42	M., 4 wks.	Soft, and posterior half of hard palate; right incomplete harelip.	Jan. 9th, 1906.	Healed.	"Palate: We have never had any trouble in this respect. Teeth: Are somewhat irregularly placed, and a few have required the attention of the dentist."	Fair; can be understood if he speaks deliberately. Often unintelligible if he speaks fast. Trained for a year, and improving.	Letter from father Nov., 1911.
43	M., 3 wks.	Complete; left harelip.	1. Jan. 16th, 1906. 2. April 3rd, 1906.	Anterior half did not hold.	Death 5 days after second operation; persistent vomiting.		—
44	M., 1⅔ yrs.	Soft, and posterior half of hard palate ½ inch wide.	Jan., 1906.	Healed.	Hard palate healed. Soft palate short, movable; posterior ½ inch is ununited.	Very bad; usually unintelligible; special trouble with *b*, *d*, *k*.	Seen Sept., 1911.
45	F., 5 wks.	Soft, and posterior half of hard palate; left incompfete harelip.	Jan. 26th, 1906.	Healed.	Healed; hard palate ridged and grooved; soft palate fairly well-formed; no uvula. Teeth rather irregular—otherwise not bad.	Child could not be made to speak. Mother says she speaks fairly, though strangers cannot at first always understand her.	Seen Oct., 1912.
46	M., 2 wks.	Complete; left harelip.	1. Feb. 2nd, 1906. 2. Apr. 13th, 1906.	Posterior third and a small gap anteriorly remained unjoined. Diarrhœa.	Death about May 8th, 1906.		—

TABLE III.—*100 Consecutive Cases of Cleft Palate treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results—(Continued).*

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
47	F., 11 yrs.	Soft, and posterior half of hard palate ¾ inch wide. Harelip cured.	Feb. 6th, 1906.	Failed.	"The palate is still open, except a small part at the back."	"She speaks fairly plain with us, but strangers do not understand her, and she has had no training."	Letter from mother Nov., 1911.
48	M., 6 wks.	Not stated. Child cyanosed; loud heart murmur; thrush and diarrhœa which were treated before operation for nearly 3 weeks.	Feb. 27th, 1906.	—	Death from broncho-pneumonia. April 3rd, 1906.		—
49	M., 7 yrs.	Soft, and posterior half to two-thirds of hard palate.	Feb. 23rd, 1906.	Failure.	Cleft widely open; very little tissue at sides of cleft.	Poor; markedly nasal. Mother says he can be understood at school.	Seen Sept., 1912.
50	F., 6 wks.	Soft, and posterior three-quarters of hard palate; left harelip.	Feb. 16th, 1906.	Failure.	Death from pneumonia the day after return from hospital.		Conversation with mother Oct., 1912.
51	M., 4 wks.	Complete: left harelip.	1. Feb. 23rd, 1906. 2. Feb. 16th, 1907 (lip only).	Not stated.	Hole, about 5 mm. diameter, on left side at junction of hard and soft palates. Soft palate healed, but short and almost motionless. Teeth irregular; 3 are carious.	Markedly nasal. Ordinary speech only with difficulty intelligible, though separate words quite intelligible.	Seen Nov., 1911.
52	M., 5 wks.	Complete; left harelip.	Feb. 27th, 1906.	Suppuration; abscesses in left cheek and in submaxillary regions. Death.	—	—	—
53	F., 3 mos.	Soft palate.	Mar. 2nd, 1906.	"Improved."	A neighbour tells me that the child went abroad with parents 3 years after operation; could be understood.	talked indistinctly, but	June, 1912.
54	F., 5 wks.	Complete; right harelip.	1. Mar. 6th, 1906. 2. Mar. 13th, 1906 (lip only). 3. May 15th, 1906 (lip only).	Healed. Failed.	Healed; both hard and soft palates much scarred. Arch of hard palate almost non-existent. Soft palate moves very little; uvula to left side. Alveolar arch and teeth irregular.	Nasal, but fair; usually intelligible; trouble especially with *s* and *r*.	Seen June, 1912.
55	M., 9 yrs.	Soft palate and part of hard.	1. Mar. 9th, 1906. 2. June 8th, 1906.	Failed.	Widely cleft.	Fair since insertion of obturator; before this unintelligible.	Letter from patient's dentist Nov., 1911.
56	F., 4 mos.	Soft palate.	Mar. 13th, 1906.	Not stated.	"The operation was a failure."	"She speaks very well and can be understood by strangers. She has not had any special training."	Letter from father Nov., 1911.
57	M., 2 wks.	Complete; no harelip.	1. Mar. 16th, 1906. 2. Nov. 2nd, 1906.	? Partial sloughing of flaps. Complete closure.	Healed; arch low. Soft palate short and almost immovable. Teeth slightly irregular in front; one premolar on each side badly carious.	Markedly nasal, but quite intelligible as a rule; trouble especially with *th* and *s*.	Seen Nov., 1911.
58	F., 2 wks.	Complete; left harelip.	Mar. 23rd, 1906.	—	Died a week after operation from pneumonia.		—
59	F., 7 yrs.	Soft, and posterior three-quarters of hard palate.	April 6th, 1906.	Complete closure.	Healed, with a good deal of scarring of hard palate. Soft palate very short, especially on left side. Moves moderately. Upper teeth in good condition, but extremely irregular. Lower teeth not irregular. (Fig. 2.)	Bad, and very nasal. Can be understood with difficulty; but is mentally dull.	Seen Dec., 1914.
60	M., 10 wks	Soft, and small part of hard palate.	April 6th, 1906.	Held well.	Child very ill after operation with vomiting. Death 5½ weeks after operation, vomiting continuing.		Letter from father Nov., 1911.
61	F., 3 mos.	Soft, and small part of hard palate.	April 24th, 1906.	Held well.	Hard palate healed. Soft palate widely and irregularly cleft in almost its whole extent. Right half moves, but left half scarcely at all. Teeth natural.	Fair; distinctly nasal, but quite intelligible, especially as regards individual words.	Seen Nov., 1911.
62	F., 1⅔ yrs.	Soft, and posterior two-thirds of hard palate.	May 8th, 1906.	Small hole at anterior part.	Cannot be traced.		—
63	F., 10 wks.	Soft palate.	May 11th, 1906.	Partial closure.	Soft palate very short, apparently only the anterior part remaining, with a small portion and the remains of the uvula on the right side. Moves very little.	Fair, and said to be improving; nasal. Individual words easily intelligible, but continuous conversation not easily understood.	Seen Dec., 1911.
64	F., 6 wks.	Soft, and posterior two-thirds of hard palate.	May 22nd, 1906.	Healed.	Child died about three months after the operation, wasting all the while and going downhill after return from hospital.		Conversation with woman who nursed child in its illness, and letter from mother Feb., 1912.
65	M., 6 mos.	Complete; left harelip.	1. July 27th, 1906 2. Nov. 30th, 1906. 3. June 14th, 1907. 4. Aug., 1907. 5. Feb., 1908.	Pneumonia after last operation, but recovered.	Hard palate healed, with lumpy scarring. Soft palate short, thick, nearly immovable. Only three teeth present in upper jaw, and those carious; lower teeth also bad. (Fig. 9.)	Very bad; unintelligible.	Seen Dec., 1914.

TABLE III.—*100 Consecutive Cases of Cleft Palate treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results—(Continued).*

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
66	F., 4 mos.	Soft, and posterior half of hard palate.	1. May 25th, 1906. 2. May 29th, 1906.	Flaps had to be loosened because of trouble with breathing on table. Second operation followed by abscess and erysipelas of arm.	"Her palate has not quite healed up. Her top teeth are bad."	"She speaks fairly well; has had no special training."	Letter from father, Nov., 1912.
67	M., 10 wks.	Soft, and small part of hard palate.	3. Jan. 24th, 1907. May 25th, 1906.	Middle part held. Not stated.	Good movable soft palate, but rather short; uvula good. Hard palate healed except a small hole at posterior part to right of middle line. Teeth very bad.	Bad, mostly unintelligible. Rather dull child; has not yet started school.	Seen May, 1912.
68	M., 2 yrs.	Soft, and posterior quarter of hard palate.	May 29th, 1906.	Slightly broke down.	Hard palate much scarred; healed except small hole towards left side. Soft palate short, and moves little. Uvula well marked — displaced to right.	Poor; individual words mostly intelligible, but markedly nasal; sentences only with difficulty intelligible; special difficulty with *p, w, br, s, z.*	Seen Dec., 1911.
69	M., 10 mos.	Complete; no harelip.	June 1st, 1906.	Healed.	Healed. Soft palate short, and moves only moderately. Several teeth displaced inwards. (Fig. 5.)	Fair; quite intelligible, but nasal. No special training, but parents always correct him; intelligent boy.	Seen Dec., 1911.
70	F., 1 yr.	Soft, and posterior three-quarters of hard palate.	June 8th, 1906.	Middle part healed.	Cannot be traced.		—
71	F., 2 mos.	Complete; right harelip.	1. June 12th, 1906. 2. Nov. 2nd, 1906 (lip only). 3. May 11th, 1907.	Partial closure. — —	"The palate has given way a little and sometimes her food comes down her nose; her teeth are very bad."	"We can understand what she says, but a stranger would not."	Letter from father Nov., 1911.
72	F., 7 mos.	Soft, and posterior three-quarters of hard palate.	1. June 19th, 1906. 2. Oct. 8th, 1906.	Very ill with sepsis afterwards and part of palate gave way.	Healed; no arch. Soft palate short, scarred, and only slightly movable; posterior border oblique. Uvula long. Teeth very irregular; lateral incisors and 1st premolars lie on hard palate.	Good; only slightly nasal; trouble with *th, sh,* and *l.*	Seen Jan., 1912.
73	M., 13 mos.	Soft, and posterior two-thirds of hard palate.	1. June 19th, 1906. 2. Dec. 1st, 1910.	Slight gap left posteriorly.	Hard palate much scarred; healed except hole on left side opposite 2nd premolar. Soft palate short, and very little movable; posterior border very oblique, making palate very short on left side. Teeth in both jaws bad. (Fig. 4.)	Poor; only with difficulty intelligible. Only at school 3 months; improving much since then.	Seen Dec., 1911.
74	F., 4½ yrs.	Complete; left harelip cured.	July 6th, 1906.	Hæmorrhage after operation, necessitating anæsthetic and plugging posterior palatine canal with wax. Flaps held	Cannot be traced.		—
75	F., 13 wks.	Complete; double incomplete harelip.	1. June 29th, 1906. 2. Nov. 27th, 1906 3. July 5th, 1907.	"Flaps in main held." Hard palate healed. "Slight posterior deficiency."	"The palate is quite healed. Condition of top teeth very irregular and decayed."	"Speech very plain; no special training."	Letter from mother, Dec., 1911.
76	M., 3 wks.	Complete; left harelip.	1. June 29th, 1906. 2. Aug., 1906. 3. Nov. 21st, 1906. 4. Nov. 22nd, 1906 (readjustment of flaps). 5. Summer of 1908.	— — Hæmorrhage after operation. Flaps separated to stop bleeding. —	Hard palate healed with much lumpy scarring: arch obliterated. Soft palate; only a narrow strip in front has healed; rest still cleft; the remnants move fairly well. (Fig. 8.)	Bad; unintelligible and very nasal; no special training.	Seen Jan., 1915.
77	F., 11 mos.	Soft, and posterior third of hard palate.	1. July 10th, 1906. 2. Nov. 13th, 1906. 3. Jan. 27th, 1907. 4. May 28th, 1907 (for hole in hard palate). 5. July, 1911.	Failure. Middle part held. Healed. Failure. —	Much scarred; hard palate has no arch, and shows a large perforation anteriorly. Soft palate, short; small hole at middle; is moderately movable.	Poor; ordinary speech very nasal, and only intelligible with difficulty; individual words much better; special trouble with *l, f, th,* and *g.*	Seen Dec., 1911.
78	F., 11 days.	Soft, and posterior third of hard palate.	July 10th, 1906.	Failure. Much respiratory distress after operation.	Child died at home 3 weeks after operation.		Conversation with mother, June, 1912.
79	F., 9 days.	Complete; double harelip.	July 17th, 1906.	Not stated.	Death, Sept. 24th, 1906. After operation seemed worse than before; wasting, and finally diarrhœa and convulsions.		Conversation with mother, Dec., 1911.
80	M., 14 mos.	Complete; left harelip cured.	July 20th, 1906.	Not stated.	Healed; soft palate fairly good and movable, but posterior border is irregular.	Good; trouble with *s* and *sc.* Has been at school one year, and has improved very much.	Seen Dec., 1911.
81	F., 2½ yrs.	Soft, and most of hard palate.	1. July 24th, 1906. 2. Oct. 12th, 1906. 3. Dec. 14th, 1906. 4. May 14th, 1907. 5. Jan. 7th, 1908.	Anterior part not closed. Partial closure. — — —	"The palate is completely healed."	"She speaks with a nasal twang, but can be fairly well understood by strangers. She has had no special lessons in speaking."	Letter from father, Dec., 1911.
82	F., 4 mos.	Soft palate, and hard up to anterior palatine foramen; double harelip.	1. July 24th, 1906. 2. Nov. 2nd, 1906.	Failure. Not stated.	Child died at home 2 or 3 months after second operation.		Conversation with next door neighbour, June, 1912.

TABLE III.—*100 Consecutive Cases of Cleft Palate Treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results—(Continued).*

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
83	M., 5 mos.	Complete; double harelip.	Aug. 1st, 1906.	—	Diarrhœa and double otitis media after operation. Died Aug. 10th.		—
84	M., 3 mos.	Complete; left harelip.	1. Oct., 1906. 2. Dec., 1911 (palate and lip).	— Chicken-pox after second operation.	Healed. Hard palate scarred; no arch. Soft palate very short on left side; fairly movable. Teeth rather irregular, otherwise fair.	Poor; nasal but generally intelligible with some trouble. At school irregularly for 8 months; speech said not to be improving.	Seen June, 1912.
85	M., 2 mos.	Complete; left harelip.	Oct. 5th, 1906.	—	Death at age of 4 months from pneumonia.		—
86	M., 5 days.	Soft, and hard up to anterior palatine foramen; left harelip.	1. Oct. 12th, 1906. 2. Jan. 8th, 1907. 3. June 25th, 1907. 4. Nov. 19th, 1907 (lip only). 5. ? date. 6. July, 1911.	— — — — — —	Hard palate healed, with much lumpy scarring. Soft palate much scarred, especially on left side; moves little. Small perforation on right side. Teeth fair; several have been removed.	Bad; very often unintelligible, even by parents.	Seen Dec., 1911.
87	F., 2 yrs.	Soft, and posterior two-thirds of hard palate.	1. Oct. 16th, 1906. 2. Jan. 15th, 1907. 3. Nov. 1st, 1907.	—	Healed, except for small perforation at posterior part of hard palate. Much scarring of both hard and soft palates. Soft palate very short, and immovable.	Poor; very nasal, and often only with difficulty intelligible.	Seen Oct., 1912.
88	F., 6 mos.	Complete; double harelip.	Oct. 23rd, 1906.	Not stated.	Death "in a fit through teething" when 15 months old.		Letter from father Dec., 1911.
89	M., 2½ yrs.	Cleft palate and harelip; the latter cured.	Oct. 25th, 1906 (soft palate only).	Not stated.	"Completely healed."	Speaks quite plainly, and anyone understands him as long as he speaks slowly.	Letter from father Dec., 1911.
90	F., 5 wks.	Complete; left harelip.	Oct. 30th, 1906.	Not stated.	Child died 3 weeks after operation; inability to suck and regurgitation of milk through nose persisted after operation.		Conversation with mother June, 1912.
91	M., 4 mos.	Soft palate, and hard as far as anterior palatine foramen.	Nov. 2nd, 1906.	Difficulty in breathing after operation; tracheotomy on Nov. 5th.	Death from broncho-pneumonia Nov. 11th.		—
92	F., 7 days.	Complete; left harelip.	1. Nov. 7th, 1906. 2. Jan. 29th, 1907. 3. June, 1907 (lip only).	A small part healed. Partial closure.	Child died from pneumonia a year after third operation; was to have had another operation.		Letters from father Dec., 1911.
93	F., 5 wks.	Cleft palate and double harelip.	Oct. 21st, 1906.	Failure.	Child died when 3½ months old.		Letter from father Dec., 1911.
94	M., 7 wks.	Cleft palate and harelip.	1. Dec. 7th, 1906. 2. May 14th, 1907. 3. May 1st, 1908.	Partial closure. Partial closure. Not stated.	"He died under his third operation on May 1st, 1908, at the age of 18 months.		Letter from father Dec., 1911.
95	F., 10 wks.	Soft palate.	1. Dec. 11th, 1906. 2. May 17th, 1907.	Failure. "Did not entirely hold."	"Completely healed."	"She speaks very well; there are a few words she cannot quite pronounce."	Letter from father Dec., 1911.
96	F., 8 mos.	Soft, and small part of hard palate.	Dec. 11th, 1906.	Not stated.	Healed; uvula and soft palate good and movable. (Fig. 7.)	Very good; no nasal tone. Can pronounce all words with scarcely any defect.	Seen Dec., 1914.
97	M., 1 day.	Complete; double harelip.	1. Dec. 16th, 1906. 2. Feb. 5th, 1907.	Partial closure. —	Death on Feb. 6th, 1907, from "marasmus and syncope."		—
98	F., 3 wks.	Soft, and posterior two-thirds of hard palate; congenital syphilis.	Jan. 22nd, 1907.	—	Death on Jan. 25th from "marasmus."		—
99	M., 4 mos.	Soft, and part of hard palate.	1. Jan. 8th, 1907. 2. ? date.	"Improved." —	Healed; soft palate is short, rather tight, and moves very little; posterior border slightly oblique; uvula absent. Both upper and lower teeth very bad.	Poor; continuous conversation generally unintelligible; individual words fairly pronounced; intelligent child.	Seen Feb., 1912.
100	F., 7 wks.	Complete; right harelip.	Jan. 11th, 1907.	Bridge at back of hard palate healed.	"The baby died soon after going home."		—

Note.—All the cases in this series are "primary" cases—i.e., cases which had undergone no operation upon the palate previous to the first operation recorded here.

The statement of the age of the patient refers to the age at the time of the first operation.

uvula, is well formed. The boy speaks so well that one could not detect from his speech that he had any abnormality.

Another good result, in the case of a cleft of the soft and a part of the hard palate operated on at 8 months old (Case 96), is seen in Fig. 7. The patient's speech at the age of 9 is almost perfect.

The next drawing (Fig. 8) shows the palate of a boy, aged 8 (Case 76), upon whom five operations were performed for complete cleft palate; recurrent hæmorrhage occurred after the third operation. The hard palate is much scarred, the soft for the most part still not healed, and the speech is generally unintelligible.

Another case of an originally complete cleft is shown in Fig. 9 (Case 65). Five operations had been performed, the first at 6 months old; the whole palate is much scarred, and the boy speaks very badly.

It cannot be said that these results afford support to the view that very early operation is necessary in order to secure good speech. Taking the cases of complete cleft as an example, the single case (No. 80) who spoke well five years after the operation was 14 months old when operated on, while none of the 11 cases whose speech was poor or bad were older than 6 months at the time of the first operation. The five cases of less severity whose speech was good (Cases 1, 8, 17, 72, and 96) were all more than six months of age when treated.

BROPHY'S OPERATION.

Views of its Advocates.

The third method of operation which needs detailed discussion is that devised by Brophy, of Chicago.[25] The theory upon which it is based is by now well known. It assumes the deformity to be due to failure of union between the two halves of the palate; each of these, however, is fully developed. When failure of union has occurred the two halves are separated from one another by the upward pressure of the mandible and of the tongue. As a result of this separation the upper jaw is found wider than it should be by the width of the cleft. It is evident that if this is so and the two halves of the upper jaw can be pushed together again and heafing be secured, not only will the cleft in the palate be closed, but the jaws will be restored to their normal relationships, and moreover a loose and freely mobile soft palate, in which the element of tension has been abolished, will result, with corresponding improvement in the speech.

These are Brophy's claims, and in accordance with his views he has devised his operation of pushing the bones together in early infancy, and holding them in place by silver wires which transfix their substance and are twisted together over leaden plates applied to the outer side of the alveolar arch. This idea had been suggested by Reeves[26] in 1861, but the operation was not performed by him during life. I have not been able to obtain Reeves's paper.

The whole theory seems to depend upon the statement that the upper jaw "is just as much broader than it should be as the distance between the borders of the fissure." What is the standard to which the breadth of the upper jaw should conform? Brophy assumes in his writings that it should be equal to the breadth of the mandible, but advances little evidence in proof of this; as a matter of fact, it is the rule in normal infants to find the upper jaw wider than the lower, as is shown in this photograph (Fig. 10) of a coronal section through the head of a normal full-term fœtus, cutting through the posterior part of the hard palate; the width of the upper jaw is 35 mm. while that of the lower is 31.

Table IV. gives the measurements of the width in millimetres of the upper and lower jaws of a series of normal, full-term fœtuses. The average difference in favour of the upper jaw is 2·8 mm.

TABLE IV.—*Width of Upper and Lower Jaws in a Series of Normal, Full-term Fœtuses.*

No.	Width of upper jaw.	Width of lower jaw.	No.	Width of upper jaw.	Width of lower jaw.
1	31·5 mm.	30·5 mm.	9	30·0 mm.	30·0 mm.
2	36·5 ,,	31·5 ,,	10	35·5 ,,	32·5 ,,
3	30·0 ,,	30·0 ,,	11	35·0 ,,	30·0 ,,
4	32·0 ,,	26·0 ,,	12	35·5 ,,	32·0 ,,
5	23·0 ,,	21·0 ,,	13	34·5 ,,	31·5 ,,
6	35·0 ,,	31·0 ,,	14	30·5 ,,	28·5 ,,
7	30·0 ,,	28·0 ,,	15	37·0 ,,	34·5 ,,
8	31·0 ,,	28·5 ,,			

TABLE V.—*Width of Upper and Lower Jaws of a Series of Cases of Complete Cleft Palate in Infants.*

Age.	Width of upper jaw.	Width of cleft.	Width of lower jaw.
5 weeks	38·0 mm.	11·0 mm.	29·0 mm.
3½ months	37·0 ,,	10·0 ,,	27·0 ,,
3 ,,	41·5 ,,	14·0 ,,	30·0 ,,
3 ,,	39·0 ,,	12·0 ,,	31·0 ,,
6 weeks	37·0 ,,	12·0 ,,	32·0 ,,
7 ,,	39·0 ,,	12·5 ,,	31·0 ,,
3 months	41·0 ,,	10·0 ,,	31·0 ,,
6 weeks	36·0 ,,	11·0 ,,	30·0 ,,
Birth	40·5 ,,	9·0 ,,	32·5 ,,
7 weeks	39·0 ,,	10·5 ,,	34·0 ,,

Table V. gives corresponding measurements of the jaws of 10 infants with complete cleft palate, with the width of the cleft in each case. Here the average difference in favour of the cleft upper jaw is greater than in the normal infants—8·05 mm.; but the average width of the cleft is 11·2 mm. A study both of the average and of the individual cases suggests that, while in cases of cleft palate the upper jaw is wider than the lower compared with the normal, the difference does not, as a rule, account for the width of the cleft; and the wider the cleft the less in proportion is it accounted for by mere pushing outwards of its two sides. Fig. 11 shows one of the cases in which the correspondence was exact, 4 mm. representing the extent both of the cleft and of the difference in width of the jaws.

Examination of skulls showing the condition makes it clear that in cleft palate there is a true defect or absence of tissue. The defect can be seen, and does not need to be inferred from such indirect evidence as that referred to above. The specimens which are before you show it very well, and it is particularly obvious in the case of a cleft involving only a half of the hard palate, in which the normal anterior part of the palate gives the measure of the tissue which should be present posteriorly.

In spite of the fact that this absence of tissue is well marked in the newly born, it has been suggested that it is the result of a secondary atrophy of the palatal processes, occurring after the bones have been pushed asunder. How, then, should the advocates of the theory contend that the width of the cleft is equal to the extent of separation of the maxillæ?

I do not doubt that the principle upon which Brophy's operation is based is unsound; but there can equally be little doubt that when the cleft condition is in existence the fissure is often further widened by the pressing asunder of the maxillæ, either by the pressure of the mandible or by the tongue—not improbably by both. The tongue normally, during early embryonic life, lies between the two palatal processes, as is well shown by Fig. 12, which represents a coronal section of the head of a human embryo of 8 weeks; and in a newly born infant with complete cleft palate the cleft is demonstrably widened by pushing the lower jaw firmly into contact with the upper. The same conclusion is suggested by the measurements already given, and by the oblique position of the pterygoid processes which is often seen in skulls presenting the condition. These processes in the normal skull are nearly vertical, but in cases of cleft palate their lower ends appear to have moved outwards with the maxillæ and palate bones.

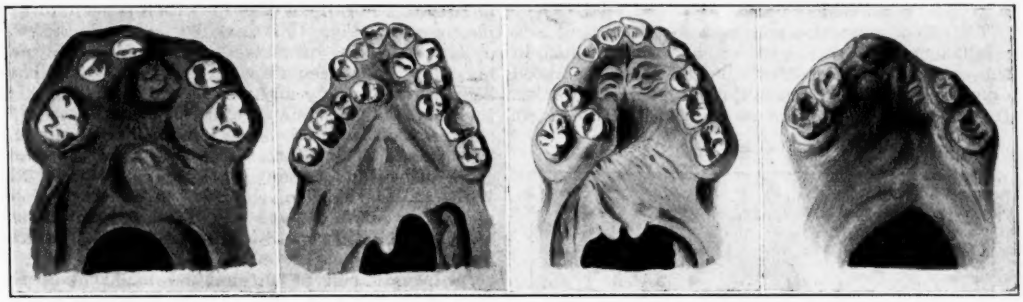
It is evident from these considerations that it is not likely that, in most cases, actual closure of a cleft will be accomplished by approximation of the upper jaws, and that such closure will be generally undesirable on account of the narrowing of the jaw which would result.

Results.

In considering the published results of the operation it must be borne in mind that until 1911, when Dr. Brophy demonstrated it in London, the method has probably been imperfectly applied. Certainly his technique differed much from the accounts of it given in text-books at that time.

I shall summarise the results as I have seen them in 10 cases treated at St. Bartholomew's Hospital in 1911 and 1912 at ages varying from 3 weeks to 4 months. The details of these cases were communicated to the International Dental

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



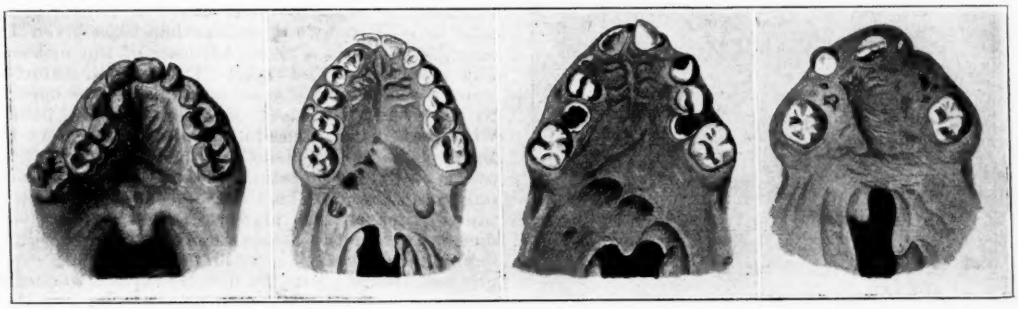
Boy aged 10. (Case 4.) Condition 9½ years after operation for complete cleft. Palate completely healed, with scarring. The permanent teeth are healthy. Figs. 1 to 9 illustrate the results of operations by Lane's method.

Girl aged 15. (Case 59.) Condition 8 years after operation for cleft of the soft and most of the hard palate. Note the displacement of teeth produced by scarring.

Boy aged 12. (Case 29.) The palate, 9 years after operation for an incomplete cleft, shows scarring around a small hole, with resulting displacement of a bicuspid tooth.

Boy aged 6½. (Case 73.) Condition 5½ years after operation for a cleft of the soft and most of the hard palate. The palate is scarred and a small hole remains, towards which the left alveolar process is drawn in.

FIG. 5. FIG. 6. FIG. 7 FIG. 8.



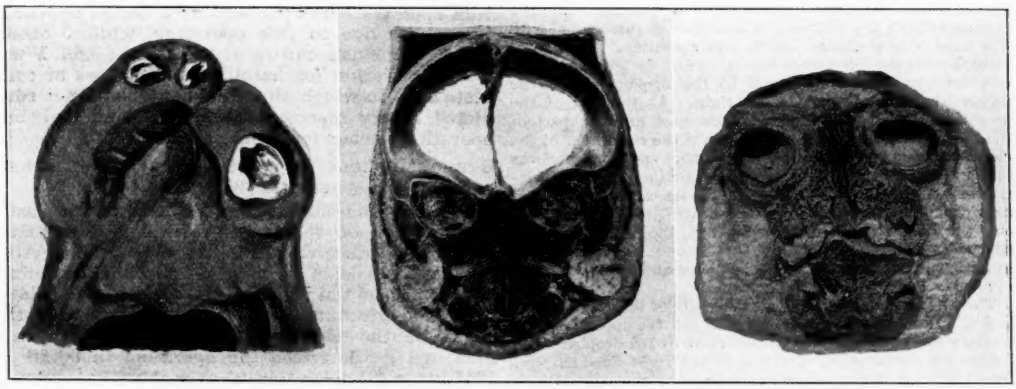
Boy aged 6. (Case 69.) Condition 5½ years after operation for complete cleft. The soft palate is short and the hard scarred, with displacement inwards of several teeth.

Boy aged 10. (Case 8.) Seen 9½ years after operation for cleft of the soft palate. The palate is well formed and movable, scarring is absent, and speech perfect.

Girl aged 9. (Case 96.) Condition 8 years after operation for an incomplete cleft. There is a good soft palate, and the patient speaks very well.

Boy aged 8½. (Case 76.) Had undergone five operations for complete cleft palate between the ages of 3 weeks and 2 years. The hard palate is much scarred, and the soft for the most part still cleft. The speech is bad.

FIG. 9. FIG 10. FIG. 11.



Boy aged 9. (Case 65.) Condition 8½ years after first operation for complete cleft. No temporary teeth remain. The palate is much scarred, the soft palate stiff, and the speech bad.

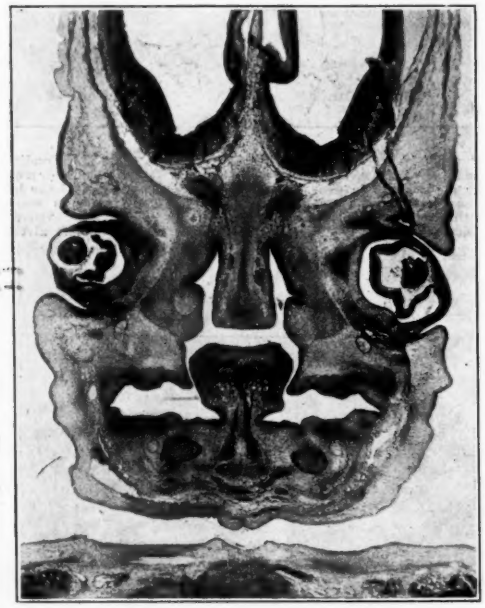
A coronal section of the head of a full-term fœtus, through the posterior part of the hard palate; to illustrate the fact that the upper jaw is normally wider than the lower.

A coronal section through the head of an anencephalic fœtus, born at full term with cleft palate. The cleft is 4 mm. wide and the upper jaw is wider than the lower by 4 mm.

Congress last year. There were no deaths attributable to the operation, though 3 of the children have died from other causes.

The effect upon the cleft was disappointing and might have been attributed to lack of experience in the operation had not one of the cases, operated upon by Dr. Brophy himself, given similar results. In no case was closure of any part of the cleft

FIG. 12.



A section through the head of a human embryo of 8 weeks. The tongue is seen lying between the two halves of the palate, which are still separated by a wide gap.

effected, except of the gap in the alveolar arch, and possibly a small portion of the hard palate immediately behind this. In only one case was any considerable narrowing of the cleft brought about, and then only by the use of so much force that a fracture of one of the alveolar processes resulted.

These casts illustrate the result of an operation performed by Dr. Brophy (Fig. 13) upon a child 4 months old. The first cast shows the complete left-sided cleft (associated with left harelip) as it existed before the operation. As is usual in such cases the left nostril was large and flattened, and the nose deflected to the right side by the displacement of the premaxilla forwards and to the right. At the end of the operation the alveolar arch and the most anterior part of the hard palate had been closed, while the remainder of the cleft was somewhat narrowed. The effect upon the face was seen in the return of the nose to the middle line, in diminution of the width of the cleft in the lip, and in very great improvement in the shape of the nostril. Two days later only the alveolar arch remained joined, the rest of the cleft appearing almost as before. The second cast shows the condition six weeks later, when the plates and wires had been removed.

Through the courtesy of the authorities at the Hospital for Sick Children, Great Ormond-street, I had the opportunity of seeing a child who had been treated there by Dr. Brophy, when 6 days old, for complete cleft palate with right-sided harelip. The condition of the palate 10 weeks after the operation is seen in Fig. 14. Again only the alveolar arch has been closed, and, although I have no record of the width of the cleft previous to operation, it seems unlikely that any great narrowing had occurred.

None of the cases in the series had better results than these. Although I have not myself performed Brophy's operation during life, I convinced myself by doing it after death in a case of double cleft palate and harelip, a cast of which is seen in this photograph (Fig. 15), that to approximate the opposite palatal processes, as long as the premaxillary bones remained in position, would have been impossible by any means short of fracturing the bones. The same conclusion was arrived at in the case of a child aged 3 months with double harelip and cleft palate. The condition before and after operation is seen in these casts. (Fig. 16.) When the two sides of the cleft had been approximated as much as was possible a gap of nearly half an inch still remained, although the upper and lower jaws were now equal in breadth.

No report can at present be made upon the speech of these patients, partly because they are still too young, and also because none of the seven survivors yet has the palate completely closed. Dr. Brophy showed, at the Clinical Congress of American Surgeons in July last, three patients all of whom spoke perfectly. Not all of these were examples of what can be achieved by his operation upon the bones in early infancy, one of the patients having been treated by Langenbeck's operation (without lateral incisions) in adolescence

Much the most complete account of the early results of Brophy's operation has been given by Kaerger,[27] who is a warm advocate of the method. His report is based upon 54 cases, all, unfortunately, too recent for an account of the speech to be given. In cases of complete cleft palate with harelip he prefers to operate on the jaws by Brophy's method at about the age of 3 weeks. In cases of double harelip and cleft palate he not only wires the maxillæ themselves, but pushes the premaxilla back into place and fixes it there; he does not attempt to obtain union of the hard palate behind the premaxillæ by this operation. In complete unilateral clefts he usually expects to obtain union of the alveolar arch and of the anterior third of the hard palate, but has seen cases in which the whole hard palate was united. The shock of the operation is said to be so little that the children are often treated as out-patients. Kaerger usually closes the palate by median suture at the age of about 3 months, and operates on the harelip a fortnight later. He aims, therefore, at completing the treatment by the age of 3–4 months. Thirty-nine of the 54 cases had the plastic operation upon the bones performed; 3 deaths appear to have been due to this operation, while 3 others followed median suture of the palate, and 1 was due to operation for harelip. Of 18 cases of complete cleft in which the treatment had been completed, 13 are reported to have required only one operation for median suture of the palate.

OTHER METHODS INVOLVING PLASTIC OPERATIONS UPON THE BONES.

For the closure of clefts of the hard palate plastic operations upon the bones have at various times been used, since Dieffenbach in 1834 suggested making an incision through the mucous membrane at the side of the hard palate, dividing the palatal process longitudinally with a saw, and drawing the edges of the cleft together with wire sutures. Although he described the operation in detail in 1845 it is not known that he ever actually employed it. It was tried on the Continent by a number of surgeons, and in this country by Fergusson, but for the most part with indifferent success, and it has long been given up.

Gay[28] in 1851 bridged a cleft of the hard palate by turning down the septum nasi, already attached

along one side of the cleft. Weber described in 1859 an operation allied to Brophy's. His patient was a child, aged 6 weeks, the subject of right harelip and a cleft of the alveolar process as far as the anterior palatine foramen. The edges of the cleft were pared, and brought into contact by two wire sutures penetrating the bones. The result was good.[29]

Schoemaker,[30] having been unsuccessful with Brophy's method, has modified it by mobilising the jaws so freely that all tension is abolished, and no special means are needed to keep the bones in place. At the same time he rotates the jaws on their antero-posterior axis, so as to make the palatal processes horizontal and to avoid as far as possible any narrowing of the upper jaw. His operation, which he advises for use on young infants, consists in chiselling through the maxilla from before backwards, just above the palatal process, on one or both sides; after the bones have been pushed together the edges are pared and sutured. He records 12 operations, with 1 death from hæmorrhage. The late results are not given. The operation appears to me to be entirely unjustifiable.

In older patients Helbing has tried to make wide clefts narrower before operation by the use of an apparatus which presses the jaws together. After this has been used for six weeks the molar teeth are nearer together by 2 cm., but the cleft is narrowed less than this because some rotation of the jaws on their antero-posterior axis occurs. He relates the case of a boy, aged 5½, upon whom an unsuccessful operation for a wide complete cleft had been performed at the age of 3. Helbing[31] operated by dividing, on the right side, the junction of the maxilla with the malar, and then pushing the maxilla over towards the left side, where it was fixed with wires and plates. Paring and suture of the palate were done four days later. Complete healing followed, with no deformity. Codivilla[32] describes a similar mode of treatment, successfully performed upon a boy, aged 5.

I saw in 1912 a boy, aged 5, who had a complete cleft palate which had been unsuccessfuly operated upon, and which was judged to be too wide to be closed in the ordinary way. The patient was under the care of Mr. Waring. An incision was made in each cheek, and through these cuts an osteotome was introduced so as to separate the malar bone from the maxilla on each side. After the wounds had healed the maxillæ were approximated by a combination of pressure by an apparatus specially devised, and forcible movement under an anæsthetic. The cleft was in this way somewhat narrowed, and Langenbeck's operation was then performed with success. Some such method may have a limited field of application in cases otherwise inoperable.

CHOICE OF METHOD OF OPERATION.

I have not attempted to put before you any new suggestions as to the treatment of cleft palate, or even to advance anatomical or embryological data upon which new methods might be based. A more urgent need is a knowledge of the results which may be obtained by the existing methods of treatment. Such knowledge has in the past been available only in the case of Langenbeck's operation; I have tried to determine the results of Lane's and of Brophy's operations as well. Incomplete as the investigation is, it nevertheless affords material for a decision as to the choice of a routine method of operation.

I have said that the principle of Brophy's operation is unsound; but it is not clear that on that account it ought to be altogether abandoned. It has this much of truth in it, that a cleft palate having developed, the cleft may be widened by separation of the two halves of the upper jaw; and there may be cases in which an operation by another method may be made easier and more likely to succeed by a preliminary approximation of the maxillæ, preferably during the first three months of life. The usual result of the operation

FIG. 13.

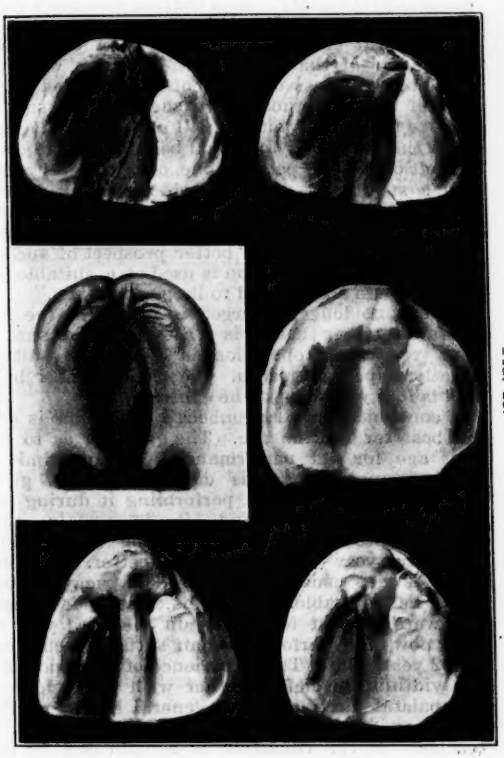


FIG. 14.

FIG. 15.

FIG. 16.

FIG. 13.—Photographs of casts illustrating the condition before and six weeks after Brophy's operation in a female child 4 months old. Closure of the alveolar arch has been effected, but the cleft of the palate is not greatly narrowed. Operation by Dr. Brophy. (Note that the nasal septum attached to the right side of the palate is very broad and fills a large part of the cleft.)

FIG. 14.—The palate of a child 10 weeks old, who had been operated upon by Dr. Brophy at the age of 6 days. Closure of the alveolar arch only has resulted from the operation.

FIG. 15.—A cast showing double cleft palate in an infant a few days old. The palatal processes are very deficient and their approximation by Brophy's operation was impossible.

FIG. 16.—Casts showing condition before and six weeks after Brophy's operation in a case of double cleft palate in an infant aged 3 months. The alveolar arch was closed, and the cleft behind this somewhat narrowed.

appears to be, however, closure only of the alveolar arch, with no great narrowing of the cleft behind this. Not inconsiderable, however, is the improvement in the appearance of the face produced by the bringing of the nose to the mid-line and the narrowing of the cleft in the lip. Granted that the mortality of the method is probably not high, is it justifiable to recommend it as a routine measure to obtain such a result? Each surgeon will decide for himself, but the matter is at any rate doubtful, especially as it is well known that almost similar

results may follow, with much less risk, if the harelip be closed and an interval of a few months be allowed to elapse.

And, with reference to the possible bad cases of cleft palate in which Brophy's operation might be used as a preliminary to other methods of treatment, such cases can probably all be closed either by Lane's operation in early infancy or by Langenbeck's method at a later date. But since more than mere closure of the cleft is aimed at, it is likely that the ultimate functional result will sometimes be better if Brophy's operation has been carried out as a preliminary. As a routine measure I think that it ought not to be used.

The rival claims of the operation of median suture and of that of the turn-over flap will continue to be discussed. Surgeons accustomed to use one of these methods with success (and success may be obtained by either) will not readily abandon it for the other. My personal belief is that in cases of cleft of the soft palate alone, or of the soft palate and a small part of the hard, there is probably little to choose between the results in cases treated by the best hands; but that in cases of greater severity there is a much better prospect of success if Langenbeck's operation is used at a suitable age by a surgeon accustomed to its performance.

It can no longer be urged in favour of the flap operation either that it is a life-saving measure or that very early operation is likely to result in greatly improved speech. The facts that I have laid before you suggest the contrary.

I conclude that Langenbeck's operation is still the best for routine use. The question as to the best age for its performance does not admit of precise answer. It is doubtful if any great advantage results from performing it during the first year of life, and it is certain that the prospect of success during the second or third year will often be better. Further delay is not usually necessary, but may in bad cases be advisable. Surgeons who a few years ago were content to operate in the third year or later now often perform median suture on children 1 or 2 years old. The experience of the operator, the width of the cleft, together with the height of the palatal arch and the general health of the child, have all to be considered before a decision is reached. If the condition is complicated by the presence of a harelip closure of the latter during the first few weeks of life has a valuable effect in causing obliteration of the most anterior part of the cleft.

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AN OUTBREAK OF

TOXIC JAUNDICE DUE TO TETRACHLORETHANE POISONING.

A NEW TYPE AMONGST AEROPLANE WORKERS.[1]

BY WILLIAM HENRY WILLCOX, M.D., B.SC. LOND., F.R.C.P. LOND., F.I.C., D.P.H., &C.,

PHYSICIAN TO ST. MARY'S HOSPITAL; SENIOR SCIENTIFIC ANALYST TO THE HOME OFFICE, ENGLAND.

IN September and October of 1914 the occurrence of several cases of illness associated with jaundice was noticed at the Hendon Aeroplane Factory. Cases of a similar nature were later observed at other aeroplane and seaplane factories. The outbreak of war naturally caused greatly increased activity in these factories, and the workers were employed overtime, so that any toxic influences to which they might be exposed in their work would be greatly increased.

My first acquaintance with the subject of my paper was on Nov. 5th, 1914, at my out-patient department at St. Mary's Hospital. The case was as follows.

CASE 1.—The patient was a man aged 36. The history of his case was that he had been employed at the Hendon Aeroplane Factory since August 8th. On Oct. 24th patient felt ill; he had nausea and retching in the morning, some slight pain in upper abdomen, and jaundice. He gave up work. His symptoms increased in severity. At my examination there was marked jaundice present; the patient appeared seriously ill. Pulse 96; temperature 99·5° F. Liver felt about 1 inch below right subcostal border in right nipple line on inspiration. No abdominal tenderness was present; no anæmia. Patient said the stools were pale and urine high-coloured. There was no history or evidence of syphilis or alcoholism. The tongue was furred and dry. Patient said he thought his illness was due to some condition associated with his work because ten other workers were affected similarly. On inquiry he stated that aeroplane "dope" was used in the factory, and he thought this was composed of "collodion, chloroform, ether, and acetone." He said that men who did not use the dope also suffered from the illness, but several of those who were using the dope had been taken ill. A diagnosis of toxic jaundice was made, and it was thought probable that some constituent of the dope was the cause of patient's illness. I did not see the patient again, but I heard that on Nov. 14th he was admitted to the Middlesex Hospital and died there on the 26th.

The case was referred to Mr. Luxmore Drew, H.M. coroner, and he after careful consideration decided that a post-mortem examination should be held. This was made by Dr. Spilsbury, who found a shrunken liver markedly bile-stained. Dr. T. M. Legge, Medical Inspector of Factories, Home Office, also investigated the case, and it was thought that the condition of the liver might be connected with the action of some poison to which the deceased was exposed during life.

A number of animal experiments were conducted by me relating to the possible toxic action of the constituents of the dopes used at the aeroplane factory, and it was clearly demonstrated that one of the constituents—viz., tetrachlorethane—was a powerful liver and kidney poison causing fatty degeneration of the cells of these organs.

Careful investigations were made by Dr. Legge and myself into the health of other employees at the factory and into the conditions of work there.

All the facts were carefully placed before the learned coroner, Mr. Luxmore Drew, who made a most careful and painstaking inquiry into the case, and as a result the jury found that death was due to degeneration of the liver caused by tetrachlorethane present in the cellulose varnish or dope used by deceased and to the vapours of which he was exposed during life.

[1] A paper read before the Medical Society of London on March 1st, 1915.

A number of other cases have been carefully examined by me, thus:—

CASE 2.—Male aged 48. Began work on August 10th, 1914; left work on Oct. 19th. He complained of constipation, sick headache, jaundice, nausea, and weakness, and some soreness of eyes. The urine was high-coloured; stools were pale. Patient returned to work on Nov. 9th, but gave up work again on the 23rd. On examination on Dec. 10th definite enlargement of liver was noticed; it was not tender. Slight jaundice was present but definite. Patient made a good recovery on being kept away from his work.

CASE 3.—Male aged 23. He commenced work on August 26th, 1914; gave up work on Nov. 30th. He complained of nausea, sickness in morning, and some slight pain in upper abdomen. He had been working near where doping was done. On examination on Dec. 3rd slight icterus was present; no anæmia; the liver was slightly enlarged; pulse 96. Patient made a good recovery on being kept away from his work.

CASE 4.—Male aged 53. He commenced work on August 31st, 1914; gave up work on Oct. 27th. He was weak and ill, with loss of appetite. He had dryness of throat. He was sick daily for 14 days. He was light-headed at night. He had definite jaundice, the urine being high-coloured and the stools pale. There was no abdominal pain. The liver was slightly enlarged. Slight but definite icterus was present; no anæmia. Patient made a good recovery.

CASE 5.—Male aged 44. He commenced work on August 22nd, 1914; gave up work on Nov. 30th. He complained of irritation of throat, loss of appetite, drowsiness, headache, and vomiting on two occasions before giving up work. Slight but definite jaundice was present on Dec. 10th. The liver was slightly enlarged; no tenderness over it. Patient made a good recovery.

CASE 6.—Male aged 47. He began work on Sept. 22nd, 1914; gave up work on Nov. 23rd. He did much overtime and used dope. He had loss of appetite, nausea, constipation, drowsiness, sickness in morning, and definite jaundice. The stools were pale and urine high coloured. On examination the liver was found slightly enlarged. Patient said he was a bilious subject. He made a good recovery.

CASE 7.—Male aged 28. He began work on August 13th, 1914; gave up work on Nov. 7th. He returned to work on Nov. 14th and gave up work again on the 21st. Patient had loss of appetite, nausea, vomiting at times, constipation, drowsiness at work, and dryness in throat. On examination definite jaundice was present. There was no abdominal tenderness. Slight enlargement of liver was present. Patient made a good recovery.

CASE 8.—Male aged 24. He commenced work on August 14th, 1914. He used the dope varnish. He very soon began to feel ill. He suffered from loss of appetite, nausea, constipation, headaches, and nasty taste in back of throat; was drowsy while at work; general weakness was complained of. He gave up work on Dec. 7th. On examination there was slight but definite jaundice. Temperature 99·2°F. The liver was somewhat enlarged, the lower border reaching three-quarters of an inch below right subcostal border in the right nipple line. There was no tenderness in abdomen. No signs of alcoholism or syphilis were present. He said the stools had been biscuit coloured. The patient made a good recovery.

CASE 9.—Male aged 49. He commenced work on Sept. 15th, 1914; at once began to feel ill. He suffered from drowsiness, constipation, and slight headache. The stools became pale in colour. There was no abdominal pain. Definite jaundice occurred on Oct. 7th, but cleared up before Nov. 2nd. He gave up work but resumed again on Nov. 2nd; the symptoms at once recurred. He now had sickness and the jaundice reappeared on Nov. 19th. He gave up work for the second time. The jaundice was now deeper than before, the stools were pale, and urine dark coloured. On examination on Dec. 17th there was still definite jaundice of slight depth. The liver was slightly enlarged, the lower border reaching half an inch below right subcostal border on inspiration. Patient improved slowly, but got well.

CASE 10.—Male aged 31. He commenced work on August 12th, 1914. He began to feel ill about Dec. 1st. He complained of loss of appetite, headache, peculiar taste in mouth, drowsiness, nausea, and retching in morning. He was sick on Jan. 6th, 8th, and 9th, 1915. He became slightly jaundiced and gave up work on Jan. 9th. On examination on the 11th slight icterus was present. The liver was slightly enlarged, being felt about half an inch below subcostal border in right nipple line. Patient seemed in a marked toxic condition considering the slight amount of icterus present. He made a good recovery.

CASE 11.—Male aged 58. He began to work at Hendon on June 3rd, 1914. He was working close to where the dope was used. He left work on Sept. 21st. He was weak, felt drowsy, had no appetite, no energy, and the bowels were constipated. He had nausea, vomiting on one occasion. Jaundice developed on Sept. 14th. The patient became deeply jaundiced, with pale stools and high-coloured urine. He went to hospital on Oct. 2nd and was in there seven weeks. He developed ascites while in hospital and this increased. Œdema of the legs also developed. The urine on examination by Dr. J. M. Bernstein showed a deposit of leucin. On Jan. 1st, 1915, paracentesis was performed by me and 22 pints of clear ascitic fluid were drawn off. The fluid gradually reacccumulated, and about three weeks later paracentesis was again performed by Dr. W. H. Ogle-Skan, who removed 21 pints of ascitic fluid. The fluid reaccumulated after this tapping, but Dr. Ogle-Skan tells me that absorption of the fluid has commenced and that patient is much improved in health and strength, and seems in a fair way to recovery. There was no history or evidence of alcoholism or syphilis in this case.

Other cases than those above described occurred at Hendon, but these are all on which a detailed clinical examination was made by me. In none of the above cases was there a history of alcoholic excess or of syphilis. In several of the cases the Wassermann test for syphilis was applied, but in every case the result was negative.

On Dec. 4th, 1914, I visited the Hendon aeroplane works. The smell of tetrachlorethane was very much in evidence, and at that time the ventilating arrangements by the plenum system were such that the heavy vapour of the dope was blown about the large room of the factory instead of being extracted. A reference to a plan on which were marked the places where affected persons worked showed that several cases of jaundice occurred at quite considerable distances—e.g., 30 or 40 yards—from where the dope varnishing was done. The more severe cases occurred in persons who were actually using the dope or were near where it was used. On questioning some of those working in the factory at the time of my visit I found that several workers complained of nausea, biliousness, drowsiness, constipation, loss of appetite, nasty taste at the back of the throat, headache, and general malaise, these symptoms being no doubt due to the dope vapour.

Cases of illness similar to those at Hendon have occurred in other factories where tetrachlorethane has been used. At the aeroplane factory at Crayford two severe cases occurred.

CASE 12.—Female aged 19. She commenced work in August, 1914. About Nov. 15th the patient complained of the smell of the dope, of discomfort in throat, and drowsiness. On Dec. 27th she became acutely ill with jaundice; there was vomiting and some abdominal pain. She became worse and on Jan. 2nd, 1915, vomited blood, was stuporose, and had convulsive twitchings. The stupor deepened into coma which lasted two days, when death supervened.

Necropsy.—The liver was hard and firm; it was very yellow and showed marked congestion; weight 34½ oz. The kidneys showed marked yellow staining of the cortex, the pyramids being intensely congested. The medulla was yellow and congested. The kidneys weighed each 5 oz. The heart weighed 7½ oz. The muscle showed yellow staining; some pink staining of endocardium. Numerous petechiæ were present over surface of left ventricle. The small intestine showed intense petechial hæmorrhage over

the surface. There was marked congestion of the small intestine. The spleen weighed 8 oz.; it was hard and firm. Microscopical examination of the liver showed extensive necrosis, and in the kidney fatty degeneration was present.

CASE 13.—Female aged 17. She was working in the aeroplane factory for 4 months. On Jan. 14th, 1915, she felt ill; complained of discomfort in throat and general weakness. On the 28th she gave up work. She complained of nausea, sickness, and constipation. Jaundice occurred at this date. Patient was examined on Feb. 25th. There were intense jaundice, stupor, and delirium. The liver could not be felt. Spleen could not be felt. There was some dulness in flanks, which became resonant when patient rolled on to side. The urine contained much bile and a trace of albumin; many epithelial and granular casts were present. Patient became worse, passing into coma, and death occurred on Feb. 28th.

A fatal case occurred at the Seaplane Works, Rochester.

CASE 14.—Female aged 34. She commenced work in September, 1914. She worked overtime. On Dec. 7th she complained of feeling of illness and loss of appetite. On the 21st she gave up work. She was then jaundiced and complained of biliousness; she had abdominal discomfort, vomiting, and headache; constipation was present. On the 23rd she was dazed and confused; could not understand questions. On the 24th there was more severe abdominal pain and very deep jaundice. On the 25th she became drowsy, very little urine being passed. Delirium occurred on the 27th, and patient passed into coma, death occurring on Jan. 1st, 1915.

Necropsy.—The liver was shrunken; weight 20 oz. It was hard and firm. There was intense yellow staining. Gall-bladder was normal. The small intestine and mesentery showed marked congestion. The kidneys showed yellow staining of cortex and intense congestion of pyramids. Microscopical examination showed necrosis and degeneration of the liver cells, and fatty degeneration of the cells of the kidney.

Symptoms.

The following is a general résumé of the symptoms of tetrachlorethane poisoning. For some days the patients complain of general malaise, drowsiness while at work, loss of appetite, nausea, retching in the morning, unpleasant taste in the throat, constipation usually, and headache. Abdominal discomfort is present in some cases. After indefinite symptoms of this kind, lasting several days or even weeks, definite jaundice develops, and this is associated with pale stools and bilious urine. Vomiting is now likely to become more marked. The patient may become mentally confused, stuporose, or delirious. In acute cases hæmatemesis or convulsions may occur. Coma supervenes and death results. In the toxic stage of the disease purpuric rash and hæmorrhages may occur. Suppression of urine also occurs towards the end.

If the patient is removed from the influence of the poison in the early stages of the illness the symptoms clear up, but it is some weeks before the jaundice becomes completely free, even if it is only slightly marked. In cases with deep jaundice the prognosis is bad and recovery is unlikely. In one very interesting case (No. 11, Hendon Series) the patient recovered from the acute symptoms of a rather severe attack, but afterwards signs of contraction of the liver with portal obstruction developed, marked ascites resulting. It is interesting to record that after two operations of paracentesis the patient is making a good recovery.

In the early stages of the illness the liver appears to be slightly enlarged, no abdominal tenderness being present. Later the liver diminishes in size. The urine contains in the late stages of a severe course much bile, a small amount of albumin and numerous casts, epithelial and granular casts predominating. No leucin and tyrosin crystals have been found by me in the unconcentrated urine, but as I have only had an opportunity of examining the urine in one acute case shortly before death I cannot speak as to the frequency of occurrence of leucin and tyrosin crystals. No acetone or diacetic acid has been found in the urines examined.

Interesting clinical features of the action of tetrachlorethane on the liver in the case of the aeroplane workers in this country are: (1) The insidious onset of the symptoms. (2) The comparatively long duration of the acute stage when marked jaundice has supervened, thus distinguishing the cases from acute yellow atrophy of the liver. (3) The absence of marked pyrexia, thus distinguishing the cases from infectious jaundice (Weil's disease). (4) The absence of anæmia, thus distinguishing the cases from poisoning by poisons which cause marked blood destruction—e.g., arseniuretted hydrogen, &c. (5) The marked depth of the jaundice, which is much deeper than is usually seen in cases of delayed chloroform poisoning.

There seems to be a marked variation in the susceptibility of certain persons to the poison, and this corresponds to the varying susceptibility of patients to other liver poisons—e.g., chloroform as described by Dr. L. G. Guthrie.

The jaundice appears to be of the toxæmic type, or hæmohepatogenous jaundice of Rolleston, and the exact type of the symptoms appears to be distinguishable from those of previously described liver poisons. There is no doubt that the question of dosage plays a very important part in the type of symptoms and in the incidence-rate of the illness. Thus the body is able to deal with very small amounts of the poison. When the quantity of poison absorbed becomes greater than the amount which can be dealt with, then symptoms result, and these will be progressive unless the patient is removed from the influence of the poison. The effect of increased dosage in causing illness is well shown by the effects of overtime and the increase in the quantity of dope varnish used in causing illness, whereas under previous conditions no harm resulted to the health of the workers.

It is interesting to record that on May 13th, 1914, a report was issued by Dr. Heffter and Dr. Kraus on Industrial Poisoning by Tetrachlorethane. In Germany the dope used contained a much higher percentage of tetrachlorethane than the English varnishes. As a result of this two types of symptoms resulted: (1) In one type of case gastro-intestinal and hepatic occurred as in the English cases; (2) in the other type of case nervous symptoms predominated, the patients suffering from tremors, headache, pains in limbs, numbness, pins and needles of extremities, loss of knee-jerks, and excessive sweating. In the German investigations some experiments on animals were carried out with a view to showing the anæsthetic action of the drug, but no post-mortem examination was made on the animals treated, and no direct proof was afforded of the poisonous action of tetrachlorethane on the liver.

Treatment.

Prevention of poisoning by the vapour of tetrachlorethane is of much greater importance than the treatment of patients suffering from this intoxication. Effective measures have been instituted in all factories where tetrachlorethane is used whereby

the heavy vapour is removed by powerful extraction fans, which remove the vapour at a low level and rapidly withdraw it from the workers. The Home Office have taken prompt action in the issuing of warning instructions, and in ensuring the provision of satisfactory measures for removal as far as possible of any danger to workers from the vapour of the dope used.

The treatment of patients suffering from toxic jaundice due to "dope vapour" consists firstly in their removal from all influence of the poison. Rest, light diet containing a much reduced amount of proteid, saline aperients, and general hygienic measures are all that are necessary in mild cases. It is important that a patient should not be allowed to return to his work for a long period, at least a month elapsing after the jaundice has quite cleared up. Resumption of work should not be permitted unless the methods of removal of tetrachlorethane vapour in the factory where the patient is employed are effective.

Toxicological Aspects.

In considering the Hendon cases the first question that arose was, Were the symptoms due to some natural disease such as catarrhal jaundice, acute yellow atrophy, or jaundice of an infectious type; or were they due to some poison which had a special action on the liver? A careful review of the cases indicated that the symptoms were not consistent with natural disease, but were indicative of some poison acting on the liver.

The conditions obtaining at the aeroplane factories rendered it extremely probable that the "dope" vapour which contaminated the air to which the workers were exposed was responsible for the outbreak of illness. Also the conditions of work showed on investigating the individual cases that those workers who had been most exposed to dope vapour were most likely to suffer from illness, and speaking broadly the severity of the illness corresponded to the extent to which the patient had been exposed to dope vapour.

Dope or Cellulose Varnish.

This is a solution of acetate of cellulose in a mixture of benzene, acetone, methylated spirit, and tetrachlorethane. The proportions of the constituents vary with different types of varnish. The dope is a viscid, colourless liquid smelling something like chloroform. If applied to calico it forms on drying a firm, airtight and waterproof coating. Several coats of dope are given to the calico stretched on the framework of the aeroplane wings. The evaporation of the dope does not lead to a separation of its volatile constituents. A vapour comes off which appears to be a mixture of the volatile constituents of the dope. The vapour density of this was found to be 1·91 times that of air. If dope is distilled the bulk of the liquid distils over from 63° to 80° C., although the boiling point of tetrachlorethane is 147° C.

It is necessary for the drying to take place in a warm chamber. It appears that tetrachlorethane is a valuable constituent of the dope, since there is difficulty in getting such a good firm coating with a cellulose varnish in which tetrachlorethane is not present.

Experiments were instituted to test each of the constituents of the dope and the dope itself as regards the toxic action of their vapour on the liver.

For each experiment a large glass chamber (dessicator) was used. In the bottom of this were placed daily 10 c.c. of the liquid to be tested. A perforated zinc platform was stretched across the middle of the chamber—i.e., half way up. On this were placed the animals to be experimented upon. The top of the chamber was covered with a perforated zinc roof. Rats were selected as the most suitable animals. The animals were kept in the glass chamber for eight hours a day for a week.

The liquids tested were dope, tetrachlorethane, acetone, benzene, and methylated spirit respectively. Two rats were placed in each chamber, five experiments being carried out together.

The rats thus exposed to dope vapour and tetrachlorethane vapour became very drowsy and slept all day. After removal from the chamber they remained drowsy for some little time, and on some occasions they were quite ataxic in gait, falling over on to their sides. After an hour or more usually they fed and became active. These animals did not gain in weight during the week's treatment.

In the experiments with acetone, benzene, and methylated spirit the animals were drowsy while exposed to the respective vapours, but on removal from it they immediately became lively and fed well. No ataxic symptoms were observed. All these animals gained markedly in weight during the week.

After seven days' treatment the animals were killed, and post-mortem examinations were made on them by Dr. Spilsbury and myself. The tetrachlorethane rats showed marked changes in the liver to the naked eye, there being fatty degeneration and bile-staining present. The "dope" rats showed similar changes but less marked. The rats exposed to the vapour of benzene, acetone, and methylated spirit showed no changes in the liver to the naked eye.

Careful microscopical examination of the organs showed marked fatty degeneration and cloudy swelling in the liver and kidneys of rats exposed to dope vapour and tetrachlorethane vapour, but no abnormal change in the animals exposed to the other vapours. Rats were also exposed to the action of dope vapour and tetrachlorethane vapour for five weeks. Marked diminution in size in the liver occurred in each case. The liver and kidneys were pale on section. They showed cloudy swelling and fatty degeneration.

The above experiments showed conclusively that tetrachlorethane is a powerful liver poison, and also they show that dope vapour is a liver poison, and that the poisonous property of dope vapour is due to tetrachlorethane being present in it.

In 1909 I made several experiments with tetrachlorethane on cats and rats in order to determine the anæsthetic effect of the drug. The vapour was found to be a powerful anæsthetic, but after removal from the vapour it was a long time before the animal recovered from the effects, sometimes 24 hours or more being required. It was obvious that tetrachlorethane was much more poisonous than chloroform as regards its anæsthetic effects.

About this time experiments were carried out by Dr. Veley, F.R.S., in the Physiological Laboratory of the University of London, and these showed that, weight for weight, tetrachlorethane was 2·8 times as powerful a tissue poison as chloroform.[2]

Tetrachlorethane is a colourless liquid, $\begin{matrix}CHCl_2.\\ |\\ CHCl_2.\end{matrix}$ Its boiling point is 147° and specific gravity 1·614. It has a smell like that of chloroform. It is not inflammable. It is known as acetylene tetrachloride and by the trade name of "cellon." It is used largely owing to its excellent solvent properties for resins, acetate of cellulose, &c.

There is no doubt that this compound is a powerful poison to the liver and kidneys, and that it is also a powerful narcotic poison. Every care should be taken in the use of tetrachlorethane to prevent as far as possible inhalation of the vapour.

Welbeck-street, W.

[2] Proceedings of the Royal Society, Series B, vol. lxxxii., 1910.

SURGICAL NOTES ON SERIOUS HEAD INJURIES.

(From an Evacuation Hospital, British Expeditionary Force, France.)

BY A. G. WHITEHORNE-COLE, M.R.C.S. ENG., L.R.C.P. LOND.,

MAJOR (TEMP.) R.A.M.C.; SENIOR STAFF SURGEON TO THE ALLIED FORCES BASE HOSPITAL.

THE following cases may be of some surgical interest as illustrating the large amount of injury sustained by the bony skull and underlying brain tissues; also the enormous amount of brain injury and destruction which can take place, and yet the patient may recover to an almost normal condition of life and intelligence, and in a comparatively short space of time. In this hospital one has had the opportunity of seeing a very large number of head injuries, the results of rifle and shrapnel bullets, and the procedure which I invariably adopted was that of carrying out the minimum amount of surgical interference compatible with the injuries, and the undermentioned cases tend to illustrate that point. In those cases where the bullet was deeply lodged in the brain substance it was considered inadvisable to search for it, since the further laceration of the tissues engendered by the process would be more injurious to the patient than the foreign body itself. Before proceeding to operate the head was entirely shaved, under the anæsthetic, then thoroughly cleansed with ether soap, then washed with spirit, and finally painted with iodine. I noticed that all these cases took the anæsthetic remarkably well, never showing any bad after-effects—viz., sickness, &c. The anæsthetic usually employed was $CHCl_3$ or $CHCl_3$ and ether.

CASE 1.—Private, 2nd Dublin Fusiliers. Compound comminuted fracture of skull from shrapnel bullet; septic, large wound situate on vertex of the skull just behind the Rolandic area. On admission on Nov. 22nd, 1914, the patient was very bad, speechless; rapidly became worse and more and more comatose; pulse 48; temperature 99·8° F., the breathing becoming stertorous; face swollen and puffy; no paralysis.

Operation shortly after admission. A large flap was turned down, when it was seen that the vertex of the skull for an area of about 5 to 6 inches was smashed in, being reduced to a number of small fragments, one of such being driven into and blocking the superior longitudinal sinus. The dura and underlying brain tissue were very considerably damaged. The fragmented bone was removed and the edges of the bone clipped away. The superior longitudinal sinus was plugged, the dura and lacerated brain attended to, scalp wound sutured and drain inserted. Iodine was then applied to the scalp and the wound dressed with gauze soaked in 1 in 40 carbolic.

Nov. 23rd: Patient very drowsy; pulse 80; temperature 100°; answers when spoken to, but understands very little; face very swollen. 27th: Temperature 98°; pulse 116; dressing quite clean. Plug removed from superior longitudinal sinus, which was quite sweet. Evening temperature 102°; pulse 124. 28th: Temperature 102·2°; pulse 120. 30th: Wound fairly clean; speaks and fully understands what is said to him, &c.—viz., mental condition normal. Temperature 99°; pulse 104; face still swollen. Dec. 1st: Since operation both legs have gradually become paralysed and slightly rigid, with rather exaggerated knee-jerks. The right arm and hand have also gradually become paralysed, commencing from about the fourth day following the operation. Left arm normal. Incontinence of urine noted to-day. Temperature 99°; pulse 112. 2nd: Patient able to open and shut right hand. Temperature normal; pulse 120. 8th: Wound moderately clean. Able to move right hand normally, but not arm; legs still paralysed; complains of cramp-like pains in both legs. 9th: Face much less swollen; wound progressing satisfactorily. Can move right arm very slightly. Temperature 97·4°; pulse 84. 10th: Patient able to move arm better, though very slightly. 13th: Wound satisfactory. The patient is able to move right arm almost normally; moves both legs very slightly for the first time; incontinence ceased. Temperature and pulse normal. 16th: Still slight movement of legs noticeable and much less pain, otherwise condition excellent; mental condition normal. 24th: Patient complains of no pain in his legs, and is able to move the left leg up and down very slowly, and only able to move the right leg down. General condition excellent. Evacuated to hospital ship.

CASE 2.—Private, 2nd Coldstream Guards. Compound comminuted fracture of the skull from rifle bullet, the entrance and exit wounds being about 4 inches apart. The entrance wound was situate slightly anterior to and below the parietal eminence of the left parietal bone, and the exit wound near the posterior superior angle of that bone; both wounds septic. The patient was aphasic on admission on Oct. 25th, 1914—in fact, the only word he could utter to anything that was asked him being "Yes"; also right hemiplegia.

Operation shortly after admission, when it was found that the greater portion of the left parietal bone, and the adjoining portions of the left occipital and frontal bones were fragmented. The dura and underlying brain tissue were considerably damaged. The parietal bone on the opposite side was loose. All the loose fragments and spicules of bone were removed; the dura and underlying damaged brain tissue were carefully attended to, all pressure being relieved. The scalp was sutured and the wound drained.

Oct. 26th: Patient looking well. Still could only utter the word "Yes." Was very sensible; evidently knew what was said to him, but could not answer; he apparently knew what the answer should be—aphasia. Hemiplegia; retention of urine, followed by incontinence. Towards evening he was dull and sleepy. Wound dressed with alcohol and looked very well; large amount of serous exudation. 29th: General condition much improved; patient much more alert. 31st: Wound still slightly septic, but healed in places. A small amount of brain substance was noticed bulging through the wound in the region of drainage. Treated with iodine and alcoholic dressings. Nov. 2nd: It was noticed that the patient on being asked questions would still answer "Yes," but was evidently aware that this was the wrong answer, since he promptly became irritable and slapped his chest. If the right answer was suggested to him he immediately became quiet and nodded his head with approval. 10th: Hernia cerebri practically disappeared; slight serous discharge; general condition good. Temperature and pulse normal; bladder symptoms disappeared. 13th: Slight movement noticed in the right lower limb. He is now able to speak a few words. Would frequently use the wrong word, but after some little thought would invariably be able to supply the correct word. The words are very slow and deliberate. Mental attitude happy and genial. 15th: General condition still improving; speech improving; can read the daily paper a little. Right lower limb is becoming much stronger; still slight discharge from wound. 17th: Wound clean, no discharge. Patient now began to move right arm slightly; movements of lower limb more pronounced; speech improving. 20th: Right arm movements are much stronger, and by placing the arm in a certain position on a pillow or support at his side he can flex it from the elbow. 24th: Wound healed. Movements of the right arm, hand, and fingers are much stronger, but that of the thumb is somewhat behind. He can now read, talk, and walk. Was evacuated to hospital ship.

$CHCl_3$ anæsthesia was administered, which the patient took remarkably well, and there was no after sickness. This was a very remarkable and interesting case to watch. From the day following the operation one noticed the intelligent look in his face on being questioned or on approaching his bed, although he could only utter one word, which after a short time he knew to be the wrong word; also to follow the various centres gradually resume their normal functions again.

CASE 3.—Private, Irish Guards. Compound comminuted fracture of the skull from rifle bullet. Admitted on Nov. 19th, 1914, in a semi-conscious condition, with an entrance and

exit wound. The entrance wound was situate at a point about the centre of the left eyebrow and about a quarter of an inch above, and the exit wound through the temporal muscle above the left ear. Marked œdema of both eyelids; left corneal hæmorrhage; left facial paralysis; no further paralysis. Temperature 101·4° F.; pulse 88; wound somewhat septic; very restless and irritable and in much pain.

Operation on Nov. 20th; anæsthetic, ether. A semicircular incision was made joining the entrance and exit wounds; flap turned down. It was found that the outer portion of the frontal bone and the orbital plate of that bone were fragmented, and a fissure extended through the temporal bone from the point of exit of the bullet down to the zygoma. All fragments of bone were removed, the temporal muscle was repaired, and the wound cleaned up and closed; a tube for drainage was inserted. Temperature 101°; pulse 76.

Nov. 21st: Temperature 103·4°; pulse 96. Wound looked fairly clean; one stitch was removed. 22nd: Temperature 102°; pulse 74. 23rd: Temperature 101·6°; pulse 78. Wound dressed; a small exudate of pus was noticed; tube removed. Wound flushed out with iodine solution; a gauze drain inserted. 24th: Temperature 100°; pulse 78. Wound septic; fomentations four-hourly. 27th: Temperature 100°; pulse 70. Wound much cleaner; discharge less; general condition improved. 29th: Much pain over left upper eyelid and eyebrow; eyelid was very swollen and inflamed; more discharge from entrance wound. Temperature 99°; pulse 70. 30th: Eyelid still about the same.

Dec. 2nd: Under $CHCl_3$ an incision was made into the eyelid; only serum escaped. A number of unhealthy granulations at both entrance and exit wounds were curetted away with a sharp spoon; wounds swabbed out with tincture of iodine and gauze drain inserted. Temperature 98°; pulse 70. 3rd: General condition much improved; eyelid much less distended and inflamed; no pain. Temperature 98°; pulse 70. 4th: Discharge very slight; no pain. From this time onward the patient uninterruptedly progressed, and was discharged to hospital ship on the 13th inst. with wounds practically healed and no evidence of facial paralysis.

CASE 4.—Colonel, R.F.A., admitted on Oct. 23rd, 1914, with a compound comminuted fracture of the right parietal bone and hernia cerebri; there was a hole in the parietal bone about the size of a shilling piece; left hemiplegia; semi-conscious. Temperature 99·8° F.; pulse 60. At operation the wound was opened up; all fragments of loose bone were removed, the bony opening slightly enlarged, and pressure relieved. The wound was closed and gauze drain inserted. 26th: Left leg moves fairly well; still paralysis of face and arm. Temperature and pulse normal. From this date to Nov. 19th progress was very satisfactory, temperature and pulse remaining normal. Was seen by Colonel Makins, and later by Colonel Sargeant, who both expressed themselves as very satisfied. Nov. 19th: Scalp wound healed; no hernia cerebri; partial paralysis of left arm and very slightly indeed of left side of face; leg completely recovered. Can raise left arm a little from the shoulder, unable to flex elbow or wrist, has slight grip with the fingers. Mental condition unimpaired; able to walk about ward with a little help. Discharged to hospital ship.

CASE 5.—Corporal, Seaforth Highlanders. Compound comminuted fracture of skull from rifle bullet. Entrance and exit wounds, both septic. The entry wound was quite small and situate in the frontal bone about 3 inches vertically above the inner canthus of the right eye. The exit wound was a large gaping hole in the temporal region about the size of a half-crown piece; this wound was situate about ½ inch to the left of the left eye and lying both above and below that level and piercing both the frontal and malar bones. Brain matter could be seen oozing from both wounds, and especially the exit wound, and an instrument could be passed from one wound to the other without feeling any solid brain matter. Temperature 101° F.; pulse 110; left eyeball collapsed.

Operation a few hours after admission (Nov. 9th, 1914). The two wounds were joined together by a semicircular incision, and it was found that the intervening bone was shattered. All the fragmented bone was removed, which included the greater portion of the frontal bone, including the supraorbital plate, a portion of the malar and the temporal bones. The lacerated brain tissue was attended to, the wound stitched up, the exit hole being left for drainage. The collapsed eyeball was left for the time. Wound dressed with iodine and alcohol.

Nov. 10th: This morning the patient was quite conscious; complains of very little pain; good deal of oozing of soft brain tissue. Temperature 103°; pulse 126. On visiting the wards about midday the junior surgeon was greatly surprised to see the patient reading the daily paper. 11th: Patient somewhat improved, but drowsy. Temperature 101°; pulse 100. 12th: Patient much more somnolent and was with difficulty aroused to take nourishment. Temperature 100° (evening 103°); pulse 100. 13th: Temperature 104°; pulse 94. 14th: Patient died.

This case is quoted as illustrating an enormous amount of brain and bony destruction which took place and the general condition of the patient for the succeeding five days, which was much more satisfactory than would have been thought possible.

CASE 6.—Private, R.E., admitted on Nov. 16th, 1914, with a compound comminuted fracture of the skull, septic, caused by a shrapnel bullet. The entry wound was situated at a point about 3 inches vertically above the external auditory meatus on the left side and the exit wound at a point over the posterior border of the right parietal bone about the middle. Entry wound in bone was about the size of a two-shilling piece and the exit wound was rather larger. The patient was delirious and talkative; did not answer questions. No paralysis; knee-jerks exaggerated; Babinski's sign on both sides; no ankle clonus; tended to draw legs up; abdomen retracted; dermographia. Pupils equal and contracted, reacted to light; ecchymosis of left eye. Temperature 102·2° F.; pulse 110.

Nov. 17th: Operated on; a semicircular incision was made extending from the region of the entrance to the exit wound. A fissured fracture was seen extending between the two openings and others radiating therefrom. A number of loose pieces of bone and spicules were removed, and a bony fragment 2 by 1 inches, which was partly embedded in the brain substance, was extracted. The dura and lacerated brain were attended to and the wound sutured and drained. Temperature 101·8° (evening 98·6°). 18th: Still delirious. Temperature—18th, 98·6° (evening 101°); 19th, 99° (evening 100°); 20th, 99·2° (evening 101°); 21st, 100° (evening 104·4°). 21st: Patient died.

The notes on this case are mentioned as interesting in point of view of the symptoms arising from the injury.

CASE 7.—Lieutenant, S. Wales Borderers. Admitted on Nov. 1st, 1914, with two bullet wounds situate over the region of the left parietal and occipital bones, slightly above the level of the external occipital protuberance. The two wounds, the entrance and exit wounds, were about 1½ inches apart; both were small and quite clean. Very little evidence of bleeding; a certain amount of œdema of the scalp. The patient was very irritable and noisy. Temperature normal; pulse 84. Fracture? (it is impossible to determine this definitely owing to the œdema of the scalp). General treatment adopted.

Nov. 2nd: Patient's general condition the same; still irritable and restless; œdema of the scalp about the same; temperature normal; pulse 84. 3rd: Patient vomited badly this evening and was afterwards found to be entirely paralysed on the right side and the left side of the face slightly also. Consultation was held and it was decided not to operate; somewhat aphasic. Temperature normal; pulse 96. 4th: Consultation with Sir Wilmot Herringham; general treatment continued; on examination he discovered optic neuritis, more especially on the left. Temperature normal; pulse 96.

Nov. 5th: Patient worse, showing signs of compression; operated on. An area of scalp was turned down, including the wounds. Two bullet holes were seen in the skull and a fracture extending between them. The two openings were thrown into one, when it was found that the inner table was fractured for some distance around, the dura damaged, and the brain lacerated. The opening was considerably enlarged, all depressed and fractured bone removed, and the dura and lacerated brain attended to. A spicule of bone was also found wedged in the superior longitudinal sinus. This was removed and a good deal of hæmorrhage ensued, which was

controlled by plugging. After relieving all pressure the wound was sutured and drained.

Nov. 8th: The patient shows signs of improvement; paralysis, &c., still present. 10th: Plugging removed from superior longitudinal sinus; temperature and pulse normal. 13th: Morning temperature 100° F., evening 103°; not so well. 14th: Temperature (morning) 101·8°; signs of compression reappear. Under $CHCl_3$ again operated upon; opening in the skull further enlarged; opening in dura made more free, pressure relieved. 15th: Temperature 99°. Paralysis present only on right side; left half of face normal; aphasia (can say one or two words however). 17th: Scalp wound showed signs of sepsis; several stitches removed; carbolic fomentations four-hourly. Temperature 99·6°; pulse 70. 18th: There is a slight hernia cerebri, which is foul-smelling and septic. Temperature 103·2°; pulse 120. 19th: Hernia cerebri increasing; patient not so well, lying in a semi-conscious condition; only with difficulty aroused to take nourishment. Temperature 101·2°; pulse 108. 20th to 25th: Hernia cerebri still increasing; pulse and temperature varying very much. 26th: Hernia about size of a large orange; less septic; temperature 99·4°. 30th: General and mental condition much better; had a slight rigor this morning on the wound being dressed; understands all that is said, can smoke and enjoy a cigarette.

Dec. 4th: A great deal of fluid discharge, saturating pillow and sheets; this no doubt is issuing from the lateral ventricles. No sepsis; alcohol dressings. 5th: Consultation with Colonel Lister, who examined patient's eyes. He states: Right eye: slight swelling of right disc above and below about 1 + 1D, but measurement difficult as patient is unsteady; blurring of edges and veins full. Left eye: blurring of edge; fulness of veins; no swelling; slight evidence of optic neuritis. 5th to 9th: Temperature respectively 100·2°, 100·6°, 101°, 101·4°, and 102°. 9th: There has been a very considerable increase in the discharge of cerebral fluid during the last three days. It is noticed also that since the alcoholic dressings were instituted the temperature has gradually gone up and the patient has been much more restless; so changed to-night to carbolic fomentations (1 in 40). 10th: Temperature 99·6°; some improvement; not so restless. Dec. 13th: Patient much brighter and better. He cannot speak, but understands all that is said to him and takes more interest in his surroundings. With pencil and paper he makes an effort to write with his left hand. Hernia is receding, quite clean, is firmer and fairly smooth. 15th: Patient not so well. Temperature 102·6°; pulse 136, regular and weak; had a bilious attack. Seen by Colonel Sargeant and Dr. Holmes, who expressed their satisfaction of the case; advised treatment to continue; prognosis uncertain. 16th: Temperature 101°; pulse 118, stronger. Hernia still receding; no evidence of any discharge of cerebral fluid. Can move right leg slightly, and can turn himself in bed. 23rd: Patient was evacuated to hospital ship. Much better in himself; still had paralysis and aphasia; movement in right leg much more pronounced. Hernia cerebri has receded now to a position about half an inch above the level of the scalp. The convolutions on the surface have completely disappeared, giving an appearance of a smooth flat growth.

I have reported this case at some length as an interesting condition of hernia cerebri following operation.

I should like to express my indebtedness to Colonel Makins, Colonel Lister, Colonel Sargeant, and Major Hudson for their unvarying kindness and advice; and I especially wish to express my gratitude and appreciation to Captain Radley, my assistant surgeon, under whose care many of these cases were, and to Lieutenant W. M. S. Robinson, who also had charge of some of the cases, and who collaborated with me in issuing these reports.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—This Fund has recently received a cheque for £500 from Sir John Ellerman, Bart., given as an annual subscription to be terminated a year or two after the war, the intention being to assist the hospitals over a period during which there is considerable fear of a material reduction in subscriptions and donations.

AN UNUSUAL RUPTURE OF THE MITRAL VALVE.

BY ALEX. MILLS KENNEDY, M.D. GLASG.,
ASSISTANT TO THE MUIRHEAD PROFESSOR OF MEDICINE, UNIVERSITY OF GLASGOW; DISPENSARY PHYSICIAN, GLASGOW ROYAL INFIRMARY; PATHOLOGIST TO THE GLASGOW MATERNITY AND WOMEN'S HOSPITAL;
AND
JOHN B. McDOUGALL, M.B., CH.B. GLASG.,
RESIDENT HOUSE PHYSICIAN, GLASGOW ROYAL INFIRMARY.
(*From Professor W. K. Hunter's wards, Glasgow Royal Infirmary.*)

ON a few rare occasions rupture of a cardiac valve has been attributed to strain, and in such cases the valve may be healthy, although more probably there is some pre-existent disease. A diseased valve may rupture as a result of a strain, but more frequently there is no history of strain and the rupture is but an incident in the progress of the disease. In such cases there is an acute endocarditis of the malignant or ulcerative type affecting the valve, which in its progress causes the formation of an aneurysm on the valve, and this eventually gives way under the pressure of the circulating blood. The resulting incompetence and effect on the circulation are variable.

It seems to be generally assumed that infection of a valve in endocarditis takes place directly from the blood circulating through the heart, and that in simple endocarditis the vegetations are usually confined to the lines of contact of the cusps, whereas in the malignant form the endocarditis is characterised by, among other things, its tendency to affect parts of the valve other than the lines of contact. Further, malignant endocarditis has a tendency to spread to parts of the cardiac musculature, notably the posterior auricular wall and the chordæ tendineæ in mitral cases.

In an investigation into the pathology of cardiac arrhythmia, which one of us (A. M. K.) has been engaged upon for a number of years, a prominent feature of cases of endocarditis has been the marked inflammatory reaction present in the cardiac tissue at the bases of the inflamed valves, and this, striking inwards, involved the subjacent a.-v. node or bundle, producing a corresponding disturbance of the cardiac rhythm. The case herein recorded is one of malignant endocarditis, not valvular but mural, in which inflammatory reaction in the cardiac tissue at the base of the mitral valve was so acute that necrosis occurred and the cusps were torn off from their attachments to the wall.

The patient was a moderately well-nourished although sparely built man of 61 years of age, who was brought into the Glasgow Royal Infirmary in an almost unconscious condition one night at 11.40, having been found in this condition on one of the city bridges about half an hour previously. No history of the man could be obtained at this time. The body surface generally was cold and pale; he could only be partially roused, and in answer to questions uttered only unintelligible grunts. There was no odour of alcohol or any other drug from the breath, and no evident paralysis could be found anywhere. There was an old operation scar in the right inguinal region, and other old scars on the left forearm and right thigh, but with the exception of two small bruises on the back of the right hand and on the front of the left tibia, there was no other evidence of recent injury. The pupils were medium in size, reacted normally to light, and the conjunctival reflex was present. The right conjunctiva was congested, and there was a little hæmorrhage into the left. The tendon reflexes were present, but the responses were sluggish. Urine had apparently been passed involuntarily, and the bladder was

found empty on catheterisation. There was no œdema anywhere. On being put to bed the patient assumed the dorsal decubitus position, and was somewhat restless, but at no time unmanageable. The pulse was regular but extremely feeble and soft, with a rate of about 78 per minute, although the beats were difficult to count. The superficial cardiac area extended to the right beyond the right sternal margin, and to the left a little external to the mid-clavicular line; upwards it reached the third rib. The cardiac sounds were extremely faint and difficult to hear in all the areas, and no murmur was elicited. The respirations numbered 32 per minute, and were shallow and mostly abdominal. The lungs were resonant all over, and the breath sounds vesicular, with some prolongation of expiration, and accompanied by occasional rhonchi. Nothing abnormal was detected in the abdomen, and neither the liver nor spleen was enlarged. Hot-water bottles were placed around the patient in bed, and by midnight he fell into a sound sleep, from which he never awoke. The pulse became more feeble and rapid, the beats being almost imperceptible, and the cardiac sounds became extremely distant and approximated, so that first and second sounds were indistinguishable one from the other. The respirations remained much about the same; the temperature never rose above 97° F., and gradually deepening coma ensued, from which the patient died at 9.10 on the following morning—eight and a half hours after admission.

An interview with the man's relatives was obtained later, and from that it was ascertained that for many years he had been living apart from his wife in a common lodging-house, doing little work, but drinking heavily on the money allowed him by his family. No history of his present illness could be obtained and nothing further in his medical history beyond the fact that he had suffered from some urinary trouble.

At the necropsy dense adhesions were found in the abdomen, mostly in the right iliac region, but extending up to and over the surface of the liver. Just below the brim of the pelvis the old adhesions formed a particularly dense mass surrounding the vessels and ureter of the left side. Just above this mass there was irregularity, with slight aneurysmal dilatation of the common iliac artery. The mass produced a definite but not tight stricture of the ureter, and from here upwards the ureter was tortuous and much dilated, in places being about an inch in diameter. The pelvis of the left kidney was dilated, forming a hydronephrosis, and the kidney substance itself showed marked cloudy swelling, but not much atrophy. The right kidney showed cloudy swelling only. The bladder was hypertrophied and there was a number of raised patches apparently of some infection in the trigone. The liver showed fairly marked cloudy swelling and the spleen was soft and congested—of the septic type; the lungs were emphysematous and both bases were very œdematous, hypostatic congestion at the base of the right being very marked. There was slight œdema of the brain and meninges, with some chronic thickening of the pia arachnoid over the convexity, but there was nothing further of note to be made out except in the heart.

Examination of the heart revealed a "milk spot" on the front of the right ventricle and also some superficial strands of fibrosis along the courses of the coronary arteries, which were tortuous but not thickened. The tortuosity was rendered conspicuous by the diminished amount of fat that was present on the surface of the heart. The cardiac muscle showed brown atrophy and slight fibrosis. There was slight fibrous thickening with occasional very slight calcareous deposition along the line of attachment of the aortic valve, and extending downwards for about an inch there was diffuse superficial fibrosis of the endocardium of the left ventricle. At the base of the left posterior aortic cusp, in relation to the anterior mitral cusp, there was an area of calcification about the size of a pea, extending from the valve segment into the subjacent cardiac tissue. The aortic cusps showed nothing else abnormal, and the valve was competent. At the base of the mitral valve was a button-hole rupture, due to the cusps having been separated from the cardiac septum along their line of attachment. (Fig. 1.) The rupture was situated towards the right side of the valve, involving the junction between the two cusps, two-thirds of it being in the posterior cusp and one-third in the anterior cusp. The edges were somewhat ragged; its total length was about three-quarters of an inch, and its greatest breadth about three-eighths of an inch. There was very slight patchy chronic thickening towards the edges of the mitral cusp in the neighbourhood of the rupture, but no evidence of acute endocarditis on the valve segments. Corresponding with this rupture was another in the cardiac septum immediately below, and parallel to, the auriculo-ventricular ring. This rupture also was about three-quarters of an inch long and extended about three-eighths of an inch deep; its edges were rough, and apparently it marked the site of attachment of the separated valve segments. There was no evidence of aneurysm having been present on the valve. The left auricle was much dilated, and on it posterior wall, about three-quarters of an inch directly above the posterior mitral cusp, there was a patch of ulcerative endocarditis (Fig. 1); it was about the size of a sixpenny piece, and the vegetations composing it were small and granular-looking. Midway

FIG. 1.

Shows the two patches of malignant endocarditis on the posterior auricular wall and the rupture in the mitral valve. Through this the breach in the cardiac septum, with its irregular margins, can be seen. Also shows one of the moderator bands and the fibrosis at the tips of the papillary muscles.

between this patch and the ruptured cusps was another patch on the wall of the auricle. It was very minute, however, showing only five or six vegetations. (Fig. 1.) The papillary muscles showed well-marked superficial fibrosis of their tips, and three moderator bands were present in the left ventricle. The right ventricle was much dilated, and the right auricle greatly so, but there was no apparent hypertrophy of any of the cardiac chambers.

Different portions of the heart were examined microscopically and they all showed slight brown atrophy of the cardiac muscle. One piece was taken from the cardiac septum to include the auricular and ventricular portions bordering the rupture. It was cut out at right angles to the rupture, across its centre, and extended from the surface inwards the full depth of the tear. On microscopical examination of this piece (Fig. 2) it was at once evident that the breach was due to acute inflammation of pyogenic origin involving this part of the septum. The tissues were congested and infiltrated with polymorphonuclear leucocytes in abundance. These were present in greatest numbers as a broad zone towards the ruptured surfaces and the surface of the septum. Superficially the cardiac tissue was necrotic and showed in places some fibrinous deposition. The acute inflammation and necrosis involved both auricular and ventricular portions of the septum, but was much more marked in the latter; it extended the whole depth of the rupture, but gradually faded off beyond its immediate neighbourhood. The cause of the inflammation was found to be streptococci, which were present in great numbers. They were in short chains and most abundant at the surfaces.

The lesion had all the appearances of a malignant endocarditis involving the left side of the cardiac septum just below the auriculo-ventricular ring, and in which ulceration

with scanty fibrin formation was the characteristic feature. It was apparent that the breach in the cardiac septum corresponded practically with the former site of attachment of the valve segments and along which mechanical separation of them had taken place. In this region fibrosis with slight calcification was also seen. The portion of posterior auricular wall taken in the neighbourhood of the endocarditic vegetations showed a marked polymorphonuclear leucocytic reaction just below the surface. A portion from a papillary muscle showed fibrosis at the tip and elsewhere, which towards the surface was infiltrated with inflammatory cells.

FIG. 2.

The lower portion of the cardiac septum bordering the rupture. Shows the necrotic surface with zone of leucocytic infiltration below. The upper surface is the lower margin of the breach in the cardiac septum and the left side is the surface of the ventricular septum. The upper left hand corner shows the remains of the attachment of the mitral valve. (× 90.)

It is unfortunate that no recent history of the patient was obtainable, but from the naked-eye and microscopic examination of the heart it seems highly probable that the malignant endocarditis was of short duration. In all probability the source of the cardiac infection was the lesions in the bladder. We do not know whether the man had been exerting himself any more than by walking, but in any case the pathological process in the cardiac septum was sufficient to give rise to "spontaneous" separation of the cusps. It seems likely that owing to the large size of the rupture its occurrence would be associated with loss of consciousness due to the sudden upsetting of the circulation, and that death ensued nine hours later from cardiac failure.

But apart from the rupture there is another interesting, perhaps more important, feature of the case—viz., the occurrence of a characteristic malignant endocarditis involving the walls and not the valves of the heart. In this respect there is a similarity to a case observed by one of us (A. M. K.) a few years ago, which is quoted by Cowan.[1] This was a case of septicæmia in which an abscess formed in the interventricular septum and reached the interior of the right ventricle immediately beneath the septal cusp of the tricuspid valve. The centre of this cusp became involved by direct infection, and a perforation measuring nearly a centimetre in diameter followed; the margins of the cusp were not affected by the endocarditis.

We are indebted to Professor Hunter for permission to publish the case, and to Professor J. H. Teacher for permission to investigate the heart.

[1] Diseases of the Heart, London, 1914.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

HÆMORRHAGE AFTER DENTAL EXTRACTIONS.

BY PHILIP GELL GARRETT, M.B., B.S. DURH., M.R.C.S. ENG., L.R.C.P. LOND., D.P.H.

DURING the first half of last year I had an unusual number of cases of bleeding following tooth extraction. The most recent case was followed by death, and is, I think, worth recording.

The patient was a young married woman, aged 32, the mother of two children; she was tall but somewhat frail, and was the subject of some mitral regurgitation. She suffered from neuralgia, and as her mouth contained a number of stumps she was advised to have them removed. On the morning of June 19th, 1914, she came to see me because her gums were bleeding. I found that the blood issued from the socket of an incisor tooth which had been removed the day previously. The extractions were made about 6 P.M. on June 18th. The husband says that there was no bleeding at bedtime. At 6 A.M. on the 19th she found that her mouth was bleeding, and between 6 and 8 o'clock she lost quite a considerable quantity of blood. Between 9 and 10 A.M., when she visited me, I found a good deal of blood-clot, but bleeding soon stopped after pressure was applied. I saw her later in the day, when there was still no bleeding. She came to see me about 8 P.M., and was still all right. She took a motor-bus home, and then seemed to be in her usual health and spirits. At 1 A.M. on June 20th to her husband she appeared as usual. At 4 A.M. he awoke and found her with her face set. I was sent for and she was dead. I notified the coroner of her death and he decided to hold an inquest. A verdict of "Death from heart failure" was returned.

A few somewhat important points are to be gathered from this and other cases of the sort. 1. I am told that 40 per cent. of those who extract teeth are not on the Register. 2. Local anæsthesia is obtained by the injection of preparations containing powerful drugs. In the case quoted the preparation used was obtained from a firm of great repute. Most of these preparations contain cocaine and adrenalin, and it is very doubtful whether many of the operators know anything more of the action of these potent drugs than that they relieve pain and for a time check bleeding. 3. Many dentists think that they do their duty by a patient if they keep him under observation for about 15 minutes. Another patient had teeth extracted at 7 P.M., and there was so much bleeding hours after that

I was sent for. My assistant saw her at 4 A.M., and remained with her for half an hour. 4. There is not only danger from hæmorrhage, which may come on hours after the patient has left the dentist, but there is also the danger of absorption of a poisonous dose of cocaine. It should be added that the half dozen patients whom I have in mind were probably distributed amongst at least four different operators.

Earl Shilton, Hinckley.

AN INSTRUCTIVE CASE OF TUBERCULOUS PERITONITIS.

BY THOMAS BODLEY SCOTT, M.R.C.S. ENG., L.R.C.P. EDIN.

THE patient, a man aged 40, who had for some time had chronic tuberculous trouble in the chest, the left lung being in a fibroid condition, gradually developed general peritonitis. There was much pain, and tenderness on pressure. The temperature rose to 102·6° F. Dyspepsia, which was very acute, took the form of hyperacidity with occasional vomiting. In a few days a large quantity of ascitic fluid formed. There were no œdema in the legs, no jaundice, and no albuminuria, so the fluid was clearly the result of peritonitis only. On paracentesis about 2 gallons of fluid were withdrawn. This gave but temporary relief. In view of the patient's very grave condition laparotomy was advised as his only chance. To this he wisely consented. The operation was performed by Mr. Bernard Scott, of Bournemouth. He found acute peritonitis with tubercle manifest in every direction. The intestines were matted together and were in many places adherent to the anterior abdominal wall, so much so that any further paracentesis would have been very dangerous. After some trouble the adhesions were sufficiently broken down to allow of free drainage and evacuation of the ascitic fluid which had collected in pockets. The peritoneal cavity was exposed to the air for about 15 minutes; no saline injections were used. The wound was closed, no drainage-tubes being left. The patient made an uninterrupted recovery. All signs of peritonitis have gone. There are no swelling and no tenderness. The temperature has come down to 99°, and he is able to take outdoor exercise with comfort. During his convalescence from the operation he was lying out of doors in a balcony all day. The dyspepsia has gone, and the action of the bowels is normal.

This is the third case of general tuberculous peritonitis in the last 20 years that I have seen cured by laparotomy. The explanation is very difficult, but accumulating evidence shows, I think, that all such cases should have the opportunity of taking the benefit of this safe and simple operation.

Bournemouth.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received from the estate of the late Mr. Edward Baker a sum of £4788 4*s.* 1*d.*, of which £2640 are allotted to the rebuilding fund and the remainder to the general fund.—The late Mr. Birkenhead Clegg, of Backford, Cheshire, bequeathed by will £500 to the Chester General Infirmary, £300 to the Wigan Infirmary, and £200 to the Convalescent Home at Parkgate.—Under the will of the late Mr. William Stirling, of Muir-of-Ord, Ross-shire, and London, the testator left £300 each to the Northern Infirmary, Inverness, and the Ross Memorial Hospital, Dingwall, and £200 to the Cumberland Infirmary, Carlisle.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

Discussion on the Epidemiology of Cerebro-spinal Meningitis.

Professor Sir WILLIAM OSLER in opening a special discussion on this subject on Feb. 26th hoped that the debate would perhaps allay the growing apprehension on the part of the public and would stimulate scientific interest in the problems in one of the most remarkable of epidemics. He dwelt with four points. First, the epidemic prevalence during the nineteenth and the early part of the present centuries. Hirsch divided the epidemics of the last century into four great periods. A fifth began early in the "nineties," characterised by a sharp outbreak in New York in 1893, during which year also there was an epidemic in the State of Maryland localised to certain mining towns. In 1897–98 the disease reappeared, and there was an outbreak in Baltimore and severe epidemics in Germany and Italy. For the past 20 years there had been a wider prevalence of the disease than at any period since our first knowledge of it in 1805. The best indication of this progress might be had from the striking increase in the literature as shown in the "Index Medicus." New York suffered severely in 1904–05, Silesia in 1905–07, France in 1908–10, and the South-Western States of America in 1911. During this century the feature of special interest had been the increasing prevalence of the disease in the United Kingdom, which could scarcely be said to have suffered in the nineteenth. The first outbreaks of importance appeared in Ireland and Scotland in 1907–08. In Glasgow there were 1238 cases with 838 deaths, and in Belfast 705 cases with 548 deaths. For the past three years there had been a steady increase in the number of cases notified, reaching 310 in 1914. This winter, with the concentration of soldiers in camps and the unusually bad weather, outbreaks had occurred in many places. The question had to be determined whether, as had been suggested, the disease had been imported with some of the overseas troops; but Professor Osler thought that as there had been an outbreak in 1913–14 in the West of England and with the increasing prevalence this could not be maintained. As usual, the morbidity rate was low in the community, but the mortality rate was high, ranging from 50 to 75 per cent. of the cases. As a killing disease cerebro-spinal fever was insignificant in comparison with pneumonia, with which as an epidemic it had many resemblances—the constant presence of sporadic cases; the occurrence of small foci in a single house, in a barrack, or in a gaol; the special prevalence of epidemics among soldiers; the seasonal relations; the mild grade of contagiousness; the transmission by carriers; and the variability of the germ. The second point he referred to was the variability of the meningococcus—a germ with specific immunity reactions, agglutination, complement deviation, and opsonisation. Like the pneumococcus, the germ presented several strains with marked biological differences, and he referred particularly to the para-meningococcus, which, culturally indistinguishable, presented marked serological differences. The third point was the sources of infection, which had been very obscure until the discovery of the existence of sporadic cases of the disease and the presence of carriers. The sporadic form occurred not only as the "posterior-basic meningitis," as it is called, but it attacked not very infrequently young adults. It seemed probable that the meningococcus was a widely spread organism in all communities as a germ of low virulence. The most important of the studies in recent epidemics had been to show the wide prevalence of carriers, varying from 10 to 50 per cent. in the immediate entourage of a patient, and the existence of such individuals during epidemic prevalence who had themselves never been directly exposed. Healthy persons carrying the germs transmitted to others in the ordinary contact of intercourse, in the use of common eating utensils, in kissing, in the contact of soiled hands, and the contamination of food by carrier cooks. A measure of special susceptibility in the individual

must be assumed, and just as was the case with pneumonia only a very small percentage of carriers were attacked. The recurrence in cycles was very difficult to explain, but it was a character which the disease shared with many others. Possibly certain conditions favoured increased virulence, and an increased susceptibility on the part of the individual might be caused by depressing influences of overcrowding and bad weather. The sudden onset, the fulminant cases, the presence of the meningococcus in the blood favoured the view of a primary blood infection. Lastly he dealt with the question of serum-therapy, which had been remarkably successful in some outbreaks, as shown in the statistics of Flexner and Robb in the Belfast epidemic and in the recent outbreaks in the Sonth-Western States of America. The treatment was directed towards the destruction of the organisms themselves in the meninges, acting by bacteriolysis and phagocytosis, at the same time neutralising the poisons. He referred to the technical difficulties in carrying out the treatment and to the existence of refractory, so-called fast, strains of the germ. As an outcome of recent studies at the Rockefeller Institute the use of a polyvalent serum was suggested, and it was satisfactory to know that steps had been taken for the manufacture of this on a large scale for use during the present outbreak.

Dr. J. C. G. LEDINGHAM, in reopening the adjourned discussion on March 5th, said: What I have got to say in regard to the Bacteriology of Epidemic Cerebro-spinal Meningitis is doubtless only too familiar to many of you here present, but it is perhaps well in a general discussion of this kind to restate briefly certain points in connexion with the biology and distribution of the meningococcus which have a distinct bearing on the epidemiology of the disease. The meningococcus of Weichselbaum is universally regarded as the essential specific cause of epidemic cerebro-spinal meningitis, as also of certain forms of sporadic meningitis. It belongs to a small group of Gram-negative diplococci, the only other important member of which is the gonococcus. In many relationships, and especially the serological relationships, it bears a close family resemblance to the gonococcus, and if the distribution of the gonococcus were other than it is, there is no doubt that the difficulties in differentiation, surmountable though they are, might be greatly increased. Records of cerebro-spinal meningitis as we know it are wanting before the year 1805, and the daring hypothesis has been put forward that the meningococcus may have arisen as a mutant form of the gonococcus, with its seat of predilection in the meninges instead of the genital tract. It would be idle, however, to speculate further on this point at present as research is hampered by our inability to communicate either cerebro-spinal meningitis or gonorrhœa as we know them to laboratory animals. The serological and other affinities that exist between the meningococcus and the gonococcus find an interesting parallel in those that exist between the bacillus which causes pseudo-tuberculosis in rodents and the bacillus of human plague. The meningococcus is a delicate short-lived organism, and requires for its successful isolation and for a variable time after isolation the presence of serum, ascitic fluid, or some such substance in the nutrient medium. Later it can grow without these additions, but it still retains certain properties which mark it off as an organism which cannot under any circumstances lead a saprophytic life outside the human body. These properties are its great susceptibility to (1) cold, and (2) to drying. It will not grow below 25° C., and cultures kept at room temperature very rapidly die out. If no precautions are taken against drying the organism dies out even at 37° C. in a few days, but if such precautions are taken it has been found possible to keep the organism alive for so long as six to ten months. The observations of various authors vary somewhat, and it is unnecessary to cite details, but all are agreed that the meningococcus is an organism which is notoriously susceptible to external influences of the kind mentioned. When found in the lumbar fluid of cases of meningitis the meningococcus is readily identified by its Gram-negative character and its frequent intracellular disposition. After isolation the growth is distinguished by its emulsibility in saline, its action on certain carbohydrates, and its behaviour towards an agglutinating serum. As organisms other than the meningococcus are only very rarely met with in fresh lumbar fluid samples from cerebro-spinal cases some of these tests may legitimately be dispensed with, especially if work is pressing, but in the case of suspicious organisms isolated from the naso-pharynx of cases or carriers, identification tests have necessarily to be more strict in view of the fact that other Gram-negative diplococci, such as the micrococcus catarrhalis and the group of chromogenic diplococci, are liable to occur in this situation. The criteria employed for the identification of meningococci from the naso-pharynx have probably not always been of a uniformly strict character, and this fact has undoubtedly to be taken into consideration in appraising the percentages obtained by various workers who have searched for carriers either during the epidemic season or at epidemic-free periods. These points will no doubt be dealt with by other speakers who have recently had field experience in this matter. Here I desire to comment on the agglutination difficulties. It would be exceedingly desirable to have an agglutinating serum which would act with some uniformity against meningococcal strains of various origin. In hunting for carriers it would be invaluable, but so far the difficulties presented by the fact that a considerable number of strains are relatively inagglutinable have not been surmounted. A serum prepared by immunisation with one strain may agglutinate only a small proportion of other strains. For example, Elser and Huntoon in America tested a monovalent serum against 65 strains with the result that 25 or 40 per cent. of them were not appreciably affected. Similar results have been got by Arkwright and other workers. On the other hand, some of these inagglutinable strains may have slight but definite absorptive powers and may when injected into animals produce sera which affect agglutinable strains, though remaining without action or with only slight action on the homologous organisms. It is possible, however, that these difficulties may yield to further research which the present outbreak will doubtless stimulate, but it has to be remembered that in the coccal group generally these serological difficulties due to apparent high specificity of the individual strain are constantly met with—e.g., in the case of the pneumococcus. The phenomenon is not confined to this group however, as very occasionally strains of B. typhosus are met with which are relatively inagglutinable but which are able to produce agglutinins for other strains. With regard to the distribution of the meningococcus, it has never been isolated from dust, air, or fomites generally; and, indeed, its short-lived character renders very remote the possibility of its transmission by such media. Apart from the actual case of the disease, the meningococcus is found in the naso-pharynx of a certain proportion of persons living in more or less contiguity with cases. This type of carrier will be dealt with by other speakers. Here I should like to refer to its occasional presence in the naso-pharynx of healthy persons at epidemic-free periods. In the book on the carrier problem by Arkwright and myself[1] a list of observations on this point is found, and Sophian in his book[2] publishes a similar list. Some observers have found a small percentage of carriers in such populations, while others have found none, but the total number of cases examined has not been large. The only large series is that by Mayer and Waldmann (1910), who examined 9111 men in the Munich garrison at an epidemic-free period and found roughly 2 per cent. of carriers amongst them. In a recent paper in the *British Medical Journal* Sir William Osler quoted these figures and added a point of exclamation, the inference to be drawn probably being that he (Sir William Osler) was inclined to subscribe to Mayer's sweeping generalisation from his figures—viz., that the meningococcus was a ubiquitous organism occurring in 2 per cent. of normal people. This question is, of course, a most important one. If one were to accept a generalisation of this kind it would amount to placing cerebro-spinal meningitis on the same plane as pneumonia where epidemiology does not come in—i.e., if we accept the current view that a person gets pneumonia by infection with a strain which has been growing saprophytically in his respiratory tract. Now it must be said that at the time some doubt was cast on these observations of Mayer by his own compatriots, and in a footnote to his paper Mayer refers to this feeling of scepticism. But probably the feeling was one rather of

[1] Ledingham and Arkwright: The Carrier Problem in Infectious Diseases. London: Edward Arnold. 1912.
[2] Sophian: Epidemic Cerebro-spinal Meningitis. London: Kimpton. 1913.

disagreement with his generalisation above referred to. In my view there is no reason to doubt the figures, but in appraising them one has to remember that the population examined was one in which cases had been occurring yearly. It is therefore not at all improbable that some of his carriers revealed at the meningitis-free period had either been chronic carriers for some months, while others had been infected by such carriers. As a matter of fact, Mayer admits that 4 out of 35 persons who were carriers during the meningitis season proved to be still harbouring the meningococcus at the meningitis-free period. The way in which one carrier gets surrounded by a zone of carriers has been very clearly demonstrated by Selter, whose observations are to be found in the book on the carrier problem. The presence of such carriers at an epidemic-free period is indeed necessary to explain the peculiar manner in which cerebro-spinal meningitis springs up in areas between which and previously infected areas no apparent connexion can be traced. The chronic carrier with probably a zone of carriers round him act as the bridge between one epidemic and the next. A generalisation therefore like that propounded by Mayer is entirely unjustified at the present time, and is calculated to give a false sense of security to the general and medical public.

MEDICAL SOCIETY OF LONDON.

Outbreak of Toxic Jaundice of a New Type among Aeroplane Workers.

A MEETING of this society was held on March 1st, Sir J. BLAND-SUTTON, the President, being in the chair.

Dr. W. H. WILLCOX, Dr. B. H. SPILSBURY, and Dr. T. M. LEGGE contributed papers on an Outbreak of Toxic Jaundice of a New Type among Aeroplane Workers. Dr. Willcox dealt with the clinical and toxicological portion, Dr. Spilsbury with the pathology, and Dr. Legge with the industrial aspects of the condition. Dr. Willcox's paper appears in full in our present issue.

Dr. E. A. COCKAYNE spoke of the close similarity between this condition and that of the epidemic catarrhal jaundice with which he was familiar. The clinical features and pathological changes were closely parallel, and in the latter disease during an epidemic some cases also only manifested intestinal symptoms without vomiting.

Dr. J. M. BERNSTEIN said that in one case he had found leucin in the urine, and in a severe case an enormous amount of urea. He had examined two rabbits which had been running about in a workroom where doping was done. One showed degenerative changes in the liver, but no fatty changes; the other no changes whatever. Two others had been exposed to the fumes of dope constantly, day and night; neither showed any signs of ill-health. More dope was then used, and some was mixed with their food; one was killed, but no changes were found. He did not think that these investigations could be held to negative those of the readers of the papers.

Dr. F. J. POYNTON referred to the fact that there were many mysterious cases of jaundice cropping up at the present time. Five nurses had suffered from it in one ward in succession. In children the jaundice ran a very long course; one had died, and parenchymatous degeneration and shrinking of the liver had been found.

Sir FREDERIC W. HEWITT said that he was chiefly interested from the point of view of delayed chloroform poisoning. There were certain points of dissimilarity. In that condition the course was more rapid, and jaundice was less obvious, and vomiting of a material like beef-tea occurred.

Dr. WILLCOX, in his reply, said that he was not at all surprised at the negative results obtained in the case of the rabbit. He always sedulously avoided those animals in toxicological experiments, since their reaction to poisons was peculiar.

HUNTERIAN SOCIETY.—A meeting of this society was held on Feb. 24th at the Barbers' Hall, Dr. A. C. Jordan, Vice-president, being in the chair.—Dr. T. D. Lister, in demonstrating an Apparatus for Producing Pneumothorax, remarked that the procedure was based on the observation that its spontaneous occurrence in cases of pulmonary tuberculosis sometimes led to recovery. The advantage of the artificial method over the natural was that the gas introduced was sterile. Oxygen was run in first to obviate the danger of gas embolism in case a small vein had been punctured. Certainty that the needle was in the right place was assured when first a negative pressure and then varying pressures in accordance with the respiratory movements were observed in the attached manometer. His apparatus was based on that of Dr. de Carle Woodcock of Leeds. Oxygen was obtained by acting on a solution of perborate of soda with peroxide of manganese, whilst nitrogen was obtained by drawing air through an alkaline solution of pyrogallic acid. Ether gas was introduced into the pleural cavity by altering the relative heights of the gas holders and the reservoirs containing an antiseptic solution. A great many taps were necessary, but he had devised one central control tap with an indicator, by which the whole apparatus could be very simply worked. The cases for artificial pneumothorax needed very careful selection. The operation had been performed far too often. A suitable type of case was one where there was rapid infiltration of one lung without fibrosis or cavity formation, and in which there had been no response to ordinary methods of sanatorium treatment. In such cases where the treatment had been persisted in for a long time he had seen very favourable results. He believed that these results were due not to closure of air tubes but to diminution of the flow of blood and lymph through the diseased tissues. The number of deaths caused by the operation was very small. They were due to gas embolism or to the effect of the "pleural reflex" on the heart.—Dr. G. T. Western read a paper on Vaccine Therapy, its Present Scope. He referred first to the question of protective inoculation against typhoid as one of national importance at the present time. An active and partially successful campaign was being carried on against this measure. It was the duty of medical men to be prepared with a few well-controlled statistics and effective replies to objections. He quoted some striking examples of case incidence and mortality of typhoid among inoculated and uninoculated men living under exactly the same conditions, instancing especially the experience of the 17th Lancers in India in 1905 and the French soldiers at Avignon in 1912. He had inoculated a great many people against typhoid and the following questions had been frequently put to him: Is there any danger? Will it make me ill? Can I get typhoid if I am inoculated? How long will the protection last? He dealt briefly with the answers to these questions. In dealing with the present scope of vaccine therapy Dr. Western confined himself to the use of vaccines in generalised infections or septicæmias. He did not regard these as cases in which bacteria multiplied in the blood, but rather as local infections from which they were able on account of insufficient defences to find their way into the blood stream. In undoubted cases of progressive endocarditis he had often seen benefit from vaccines, but never permanent cure. Vegetations on the damaged valves were not vascularised, and consequently blood containing antibodies could not reach them, whilst they were in the best possible position for throwing off bacteria and emboli. The mortality from puerperal septicæmia, on the other hand, could be very substantially reduced by using autogenous vaccine. The same was true of acute septic infections with lymphangitis following, for instance, a prick or small wound. Doctors and nurses were liable to these attacks, as the direct passage of an organism from one subject to another was the finest way to exalt its virulence. Active immunisation by vaccines if undertaken promptly held out the best hope of cure in such cases. Stock vaccines might be given while the autogenous one was being prepared.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Jan. 28th, Dr. E. W. Hope, the President, being in the chair.—Professor Ernest E. Glynn read a paper on the Principles and Practice of the Prophylactic Use of Typhoid and other Vaccines, in which he pointed out that man might acquire immunity to typhoid fever naturally by contracting the disease. This was associated with a great increase of antibodies, such as agglutinins, opsonins, bacteriolysins, &c., in his serum. Also animals might acquire active immunity to typhoid fever artificially by vaccines; this was also associated with a great increase of antibodies. After referring to the terrible mortality from typhoid fever in recent wars, and giving a short account of the introduction of typhoid vaccines by Wright in 1896, he reported statistics from Britain, America,

France, Germany, Japan, and Italy, which demonstrated the great reduction in typhoid fever incidence and mortality as the result of antityphoid inoculation. The objections of antivaccinationists and others were next referred to. In the author's opinion the prophylactic use of typhoid vaccine in the British army was based on sound scientific principles, and was confirmed by practical experience from all parts of the world. He vigorously denounced the opposition of the anti-vaccinationists at the present critical time as criminal.—After some discussion of the paper Captain W. Permewan, R.A.M.C. (T.), proposed the following resolution :—

That this meeting of the Liverpool Medical Institution expresses its strong conviction that the time has come to make antityphoid inoculation compulsory in the British army.

Further resolved—

That this resolution be communicated to the Prime Minister, the Secretary of State for War, the President of the Local Government Board, the Leaders of the Opposition, the Irish Nationalists and Labour Parties, and to the press.

This was seconded by Mr. Bickerton and carried unanimously.

Reviews and Notices of Books.

Operative Surgery: The Head and Neck, the Thorax and the Abdomen.

By EDWARD H. TAYLOR, M.D., B.S. Dub., F.R.C.S. Irel., Professor of Surgery in the University of Dublin, Surgeon to Sir Patrick Dun's Hospital. Illustrated with 300 figures from original drawings, many printed in colours. London: J. and A. Churchill. 1914. Pp. 524. Price 30*s.* net.

THE author tells us in the preface that he has not attempted to include in this volume all the operations which have been or may be done in the regions of the body to which he has limited his book, but only those operations which a general surgeon is likely to be called upon to perform, and a knowledge of this limitation of the subject is necessary for the reader to understand the plan of the book. We think that the author has done wisely, for if he had endeavoured to present to the reader the whole of the operative surgery of the head and neck, the thorax and the abdomen, at least two large volumes would have been needed, and he would have been precluded from giving that full treatment of the subject which he has been able to supply in this volume.

The idea of the book arose from the teaching in some post-graduate classes which Professor Taylor gave in Trinity College, and the arrangement of the work is admirably suited for the instruction of those for whose benefit it was written—namely, for the surgeon who, having had little experience in operative surgery, may be called upon to operate; he may know theoretically what should be done, but he lacks that knowledge of the practical details which is so essential to success. This book supplies those details. In the case of each operation it describes the several stages very clearly, and explains why the author prefers the course which he advises. There is a wealth of illustrations which must materially assist the reader; many of the figures represent successive stages of the more important operations, and with one or two exceptions they are original. Many of them have been drawn from stereoscopic photographs taken in the operating theatre, and colour has been freely employed.

The whole book is eminently practical, and it may be confidently recommended. It is a credit to the surgery of the kingdom. A word is also deserved on the manner in which the book has been produced; the printing is excellent.

Electric Cooking, Heating, Cleaning, &c.: Being a Manual of Electricity in the Service of the Home.

By "Housewife" (MAUDE LANCASTER). Edited by E. W. LANCASTER, A.M.Inst.C.E., M.Inst.E.E. London: Constable and Co., Limited. 1914. Pp. 338. Price 3*s.* 6*d.* net.

So few householders using the electric current for lighting purposes, apart from its applications to heating and cooking, understand even the simplest technique of the system that we wonder greater efforts have not hitherto been taken to enlighten them. The majority of electricity consumers are quite in the dark as to what the current is, how it is controlled, measured, and most effectively employed. With gas it is different. Gas is an entity, not a force. Its escape is obvious to everybody and its rate of consumption is easily understood. Everyone understands the expressions "so many cubic feet per hour," "candle power," "3-inch pressure," and so forth, but few comprehend the meaning of "short circuits," "earthing," "ampères," "volts," and "watts," the terms applied to electric supply. We have little doubt that this ignorance has in many cases been costly and the source of misgivings about the integrity of the supply company when the bill is presented. The book before us, while it does not convince us that the time has come when we can abandon coal or gas in favour of the electric current for both heating and lighting purposes, puts technical matters of the kind we have indicated so clearly that we strongly recommend all electricity consumers to possess a copy. The convenience, cleanliness, and hygiene of the electric supply cannot be denied, and the main consideration which militates against its general use is cost. For fuel purposes electricity so far cannot economically compete with gas or coal. The author makes out that it can, and we may forgive her enthusiasm.

The book supplies a real need in furnishing useful practical information on the principles of the electric current for heating and lighting purposes. It enlightens the consumer of electricity on many points on which he is at present ignorant, but concerning which it would be very much to his interest that he should cease to be so.

Fever: its Thermotaxis and Metabolism.

By ISAAC OTT, A.M., M.D., Professor of Physiology, Medico-Chirurgical College, Philadelphia. New York: Paul B. Hoeber. 1914. Pp. 166. Price $1.50 net.

THE three lectures which make up the text were delivered before the sophomore class of the Medico-Chirurgical College—sophomore, an old appellation still retained, we are glad to see, in Philadelphia, meaning wise fools. Fever is a subject of maximal importance in the practice of medicine—so important, indeed, in the author's opinion, that for five-and-forty years the veteran Professor Isaac Ott has been engaged on this subject both as a practitioner of medicine and a physiologist.

The first lecture deals with thermotaxis, or the mechanism of heat regulation. The author gives a full account of his own researches, begun in 1884, to show that thermotaxis depends upon four nervous centres—two basal—the corpus striatum and the chief one, the tuber cinereum—and two inhibitory cerebral centres—the cruciate and Sylvian. There is also an account of the work of other observers on the same subject. No thermogenic centres of a marked thermic capacity exist in the pons, bulb, or spinal cord. In

the second lecture heat dissipation or thermolysis is dealt with. This is carried on by the "polypnœic centre" in the tuber cinereum, the vasomotor centre, and the sudorific centres. The polypnœic centre drives the respiratory centre to increased activity, and thus throws off more water from the lungs. The author is of opinion that the tuber cinereum has vasotonic activity—i.e., it gives tonus to the vasomotor centre. The relation of internal secretions to temperature is discussed and so is the question "Is fever beneficial?" Adrenalin is regarded as having a very potent activity in the increase of temperature when it is in excess in the blood. Hyperthermia, "protein fever," and the calorimetry of malarial fever occupy the remainder of the lecture. In the third lecture an extended exposition of malarial fever and metabolism as given by Lehacheff and Avroroff, which, the author states, "confirms his researches" made ten years previous to theirs, is presented. These authors infer that the fever rise of temperature, in a strictly physical sense, depends chiefly upon the rise of heat production. Protein, carbohydrate, fat, water, and purin metabolism in fever is then passed in review.

Summing up, the author concludes that fever consists of at least two main characters—thermogenic and toxogenic. As to temperature, there is an agent which deranges the harmony of the thermo-inhibitory, thermogenic, and thermolytic apparatuses, by which in the initial stage the metabolism of the tissues is temporarily increased. During the chill, heat dissipation is temporarily diminished; afterwards it usually follows the fluctuations of heat production. Toxins are produced which stimulate the tissue cells, hence the true theory of fever is a neuro-toxogenic process. There is no increased production of heat in the stages of continued fever—i.e., typhoid fever—only a disarranged regulation of heat.

Physicians and physiologists will read these lectures with interest and profit.

LIBRARY TABLE.

Le Traitement des Anémies. Par H. VAQUEZ et CH. AUBERTIN. (Les Actualités Médicales.) Paris: J. B. Baillière et Fils. 1914. Pp. 76. Price 1.50 francs.—In this excellent and practical little volume the authors divide all anæmias for therapeutic purposes into "chlorotic anæmia" with relatively large diminution in the proportion of hæmoglobin, and "grave anæmia" in which the red cells are reduced below 2,000,000 per cubic millimetre. As they point out, the proper antithesis to the term "chlorotic anæmia" is "globular anæmia"; but as the milder forms of globular anæmia with more than 2,000,000 red cells tend to recover spontaneously, they need but little consideration. The various forms of anæmia are described in turn in this little book, and the best methods of treatment for each are detailed. Charts showing the progress of special cases are given, some at first hand, others borrowed from the literature of the subject. The various forms of treatment that have proved most successful and their results are briefly and temperately described, including preparations of iron, arsenic, 606, bone marrow, serum, transfusion of blood, cholesterin, glycerine, the X rays, thorium-X, and splenectomy. The book is well written and full of sound practical advice, and obviously the work of experienced clinicians. It may be warmly recommended to the attention of all medical students and practitioners.

An Introduction to the Study of Organic Chemistry. By H. T. CLARKE, D.Sc. Lond., F.I.C. With diagrams. London: Longmans, Green, and Co. 1914. Pp. 484. Price 6*s.* 6*d.* net.—The author is quite definite in his view as to what a text-book on organic chemistry should be. He deals with general principles rather than with practice, and so has produced a work which, in his own words, "approaches the subject with the desire of displaying its orderly principles and structural unity." In that direction, we think, he has succeeded, because we find in his book a very clear exposition of this great branch of chemical science and an order of treatment which brings the reader step by step through preliminary considerations to complex developments. In other words, the foundations of organic chemistry will be well laid in the mind of the intelligent student who merely reads this book. In regard to practice he will gather nothing from it, but then the author is careful to add "no real knowledge of organic chemistry can be acquired without laboratory work," and we agree. But at the same time we are not going to deny the value of a "laboratory companion" or handbook setting out experimental directions. There is room, of course, for both the laboratory manual, used side by side with laboratory practice and teaching, and the text-book on "orderly principles." The latter Dr. Clarke has well supplied.

Life and Law. By MAUDE GLASGOW, M.D. London and New York: G. P. Putnam's Sons. 1914. Pp. 124. Price 5*s.* net.—The scope of Dr. Glasgow's book is best expressed by its sub-title, which is as follows: "The Development and Exercise of the Sex Function, together with a Study of the Effect of Certain Natural and Human Laws, and a Consideration of the Hygiene of Sex." Dr. Glasgow is evidently an ardent feminist; she has a very poor opinion of the male—e.g., p. 35: "Throughout the animal world we find the male more noisy, more emotional, more quarrelsome, pugnacious, and less self-contained than the female." Again, p. 47: "Woman lives more nearly on a plane than man; she is more sane, more equable, and better poised than he." True, this instability of the male gives rise to "that congenital abnormality known as genius, more common in man than in woman," but as against this "it is the same thing which causes the preponderance among men of idiocy, insanity, imbecility, moral deficiency, and criminality." If the unstable male who is reviewing this book may dare to say so, Dr. Glasgow's views on prostitution and possible remedies for that evil seem, so far as we can gather from them, quite sound. She acknowledges that the problem "is one which bristles with complications," and considers that the best method of dealing with the subject was the now unfortunately repealed Injunction and Abatement Law of Iowa, the provisions of which, however, she does not give. Among other suggestions she proposes education in sex matters, provision for healthful recreation for working girls, a minimum wage scale, and trade schools to teach girls to earn their living. As regards the prevalence of syphilis and gonorrhœa, she would like to see both parties to a marriage compelled to send in a clean bill of health.

JOURNALS AND MAGAZINES.

Annals of Tropical Medicine and Parasitology, Vol. VIII., No. 3.—This number of the Annals contains no fewer than 16 original articles, and extends to 272 pages of print, with numerous photographic illustrations, coloured plates, maps, and charts. The first paper is by Mr. J. M. O'Brien, of the West African Medical Staff, and in it is given a study of

some cases of yellow fever which he saw at Guayaquil, Ecuador, during a visit he paid to that notoriously insanitary seaport town for the purpose of increasing his acquaintance with the disease. Adverting to the natural immunity of infants to yellow fever now generally recognised, the author expresses the opinion that this is only temporary, but that permanent protection is acquired later on; for as they lose their infantile immunity they suffer one or more attacks of "undiagnosable" yellow fever, and thus by these "gentle vaccinations" they acquire a lifelong protection from the disease. Mr. O'Brien's paper is illustrated by a coloured plate.—Dr. J. W. Scott Macfie and Dr. G. H. Gallagher, of the West African Medical Staff, supply a joint article on sleeping sickness in the Eket district of Nigeria, in which locality the disease is endemic; but the type of the malady is mild and spontaneous cures appear to be frequent, most of the patients being children. Although the trypanosomes can be found in the gland juice they have not yet been detected in the peripheral circulation. The parasites differ in some respects in their morphology and their pathogenicity from typical strains of T. gambiense. The insect vector of the disease to man in Eket has not yet been determined, but suspicion has fallen upon Glossina tachinoides. This interesting article is illustrated by a number of photographs, a coloured plate, and a map. Dr. Scott Macfie also contributes notes on some blood parasites collected in Nigeria, with two coloured plates.—Professor John L. Todd writes on the trypanosome of Gambian mice. In general appearance this organism much more nearly resembles T. acomys than any of the trypanosomes which have been found in the blood of mice.—The important subject of the granule phase of spirochætæ is discussed in a very interesting way by Dr. H. B. Fantham, who assists in throwing some light upon the question. In his paper he places on record some recent personal results obtained by himself, more especially while working last year in Khartoum.—Dr. J. B. Christopherson, director of the Khartoum and Omdurman civil hospitals, gives details of a case of naso-oral leishmaniasis, corresponding to the description of "espundia," and of a case of oriental sore, both originating in the Anglo-Egyptian Soudan.—Quelques Observations Préliminaires sur la Morphologie et de la Biologie de la Larve, de la Nymphe, et de l'Image de l'Auchmeromyia Luteola (Fabr.) is the title of a contribution by Dr. J. Schwetz, of Kabinda, Congo.—A joint article by Dr. J. O. Wakelin Barratt and Professor Warrington Yorke gives an account, with numerous charts and tables, of experiments on the relation of bile pigments to hæmoglobin.—An outline of the antimalaria campaign recently carried out in Formosa is furnished by Dr. J. Hatori, medical inspector under the Japanese Government, the paper being illustrated by a map and several charts.—Dr. Harald Seidelin supplies an article on klossiella in the kidney of a guinea-pig, with two plates. This parasite was found in an animal which had been used for yellow fever experiments at Yaba, near Lagos. Since his paper was written Dr. Seidelin has observed identical parasites in another guinea-pig from the same locality.—Several articles are next contributed by members of the staff of the Australian Institute of Tropical Medicine, Townsville. The first of these is a joint paper by Dr. A. Breinl and Dr. H. Priestly on the changes in the neutrophile blood picture of Arneth observed in children living in tropical Queensland, and the same authors contribute some observations on the blood conditions of children of European descent residing in tropical Australia, being the result of an examination of 574 school children between the ages of 7 and 15 at Townsville.—Dr. Breinl also, in conjunction with Dr. W. J. Young, discusses the circumstances under which lead poisoning occurs amongst North Queensland children. The two authors suggest that such cases may commonly be due to the inhalation of dust containing lead; they draw attention also to the fact that a number of the children who suffered were addicted to the pernicious habit of biting their finger nails.—Details of some experiments, made at the Townsville Institute, on the migration of the larvæ of Onchocerca gibsoni through the capsule of the worm nodules, are given by Dr. W. Nicoll.—Dr. H. B. Fantham and Dr. Annie Porter describe the morphology and economic importance of Nosema bombi, n. sp., parasitic in various humble-bees.—The last article is by Professor J. W. W. Stephens, and in it he continues his studies in blackwater fever. He puts forward a schedule which he thinks will be found useful in recording cases of this serious affection.

British Dental Journal.—The issue of this journal for Feb. 15th contains a practical paper by F. N. Doubleday on local anæsthesia in conservative dentistry. He advocates the use of novocaine with suprarenin, using about 40 minims of a 1·5 per cent. solution. The injection should be made into the reflection of the mucous membrane from the gum to the cheek, and not into the tough mucous membrane of the gum. Details are given for the injection for the various teeth. The author advises that the cavities prepared under local anæsthesia should not be permanently filled at the time in case a small traumatic exposure has been made and passed unnoticed. He states that he has had excellent results. Mr. A. Barritt contributes a short article on dental prescribing and the new Pharmacopœia, and Mr. J. T. Hall a note on an easily prepared root-filling.

New Inventions.

A MODIFICATION OF AN OLD TONSILLOTOME.

FOR the purpose of meeting the requirements of those surgeons who when removing the tonsil force it through the opening in the tonsillotome by a pushing instead of a pulling action, I have modified the instrument I designed

some 18 years ago. In the old pattern the blade is above the sheath, in the modified one I have placed it below. By this arrangement practically nothing but the sheath required alteration. A discussion took place a few months ago in the Laryngological Section of the Royal Society of Medicine which showed that some of the most prominent laryngologists still regard my instrument as the best. It is the simplest, it has stood the test of time, and thousands of them are in regular use. Being essentially of similar mechanical construction the modified instrument will doubtless prove as durable as the original. In this, as in other matters, however, fashions change, though the principles underlying sound mechanical construction do not.

Messrs. Mayer and Meltzer, of Great Portland-street, London, W., are the makers.

CHARLES J. HEATH, F.R.C.S. Edg.,
Late Surgeon, Throat Hospital, Golden-square, W.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Feb. 18th, Sir Francis H. Champneys being in the chair. A letter was considered from the Local Government Board transmitting a copy of an application received from the Association for Promoting the Training and Supply of Midwives for a grant in aid of their work, and asking to be furnished with the observations of the Central Midwives Board on the subject. The Board directed that the Local Government Board be informed that the objects of the association are good and its council contains many well-known names, and that the Board believes that it belongs to a group of institutions which are doing valuable work and all of which deserve encouragement. A letter was considered from the medical inspector of midwives of the City of Bristol asking whether a midwife is entitled to operate on a case of tongue-tie. The Board decided that in reply to the question whether the Board considers that the dividing of the frænum of the tongue of a new-born infant falls within the duties of a midwife, the answer be in the negative. A letter was considered from the council of the Incorporated Midwives Institute transmitting for the consideration of the Board a copy of a resolution forwarded by the institute to the Local Government Board asking that body to refuse to sanction the appointment by local bodies of unqualified and inexperienced women as inspectors of midwives and for other health work. The Board decided that the Incorporated Midwives Institute be thanked for its communication.

THE LANCET.

LONDON: SATURDAY, MARCH 13, 1915.

War and Typhus Fever.

THE recently announced death of the Director-General of the Austrian Army Medical Department from exanthematic typhus in Galicia, contracted, as it appears, in the execution of his official duty, serves as a reminder of the very close and intimate association of war and typhus fever. By the light which scientific investigation has thrown upon the etiology of this disease during the last six years this association is not difficult of explanation. In the course of protracted military campaigns in which large masses of troops are herded together mostly under unfavourable sanitary conditions, where the maintenance of personal cleanliness is almost impossible and the clothing has to be worn without a change for weeks or even months, infestation by body vermin, and especially by pediculus vestimenti, soon becomes inevitable. The researches of NICOLLE, of Tunis, and other investigators have proved conclusively that the actual transmitting agent of the typhus virus to man is the body louse. When, therefore, military operations are carried out by verminous soldiers in a region where this disease is endemic the probabilities of an epidemic developing sooner or later are very great.

During the Napoleonic wars at the beginning of last century typhus fever ravaged the armies in the field and carried off many victims. In the Crimean campaign of 1854–56 the malady attacked the British, French, Turkish, and Russian forces. The same experience was noted in the Russo-Turkish war of 1878, as also in the recent conflict in the Balkans during 1912–13. The colossal combat in which at the present time the armies of eight European nations are engaging, seems hardly likely to reach its conclusion without the development of a typhus prevalence in one or another portion of the assembled hosts. The operations in Eastern Europe are taking place in a region which includes two well-known endemic areas of exanthematic typhus—namely, Russian Poland and Austrian Galicia. At the present moment owing to the war our usual sources of medical information in Galicia are not available, and we cannot therefore say how much typhus fever there has been in this province since hostilities began. But this we know, that for a long series of years attacks of typhus fever in Galicia have ranged from 2000 to 6000 a year. A recent report in a medical journal published in one of the neutral countries states that in January of this year upwards of 1500 cases of typhus fever (Fleckfieber) were notified in Austria and that about 1000 of them occurred in the province of Styria, where, so far as can be ascertained, no typhus had been previously reported for 20 years or more. Typhus fever has also been carried into Germany, in which for many years the disease had been extinct; and notification has been made of cases among the military and civil populations as well as among prisoners Although the Western battlefield of Europe does not include any locality in which typhus fever is still endemic, danger, nevertheless, may arise in another way. German troops are often moved from one side of Europe to the other, and it is not improbable that German or even Austrian prisoners taken in the western area might have come from the armies operating in Galicia or Poland, ill or incubating a typhus attack just before their capture, and thus bringing the infection into the camps of the Allies. But a more immediate source of danger is one which has already been discussed lately by our French brethren in the Academy of Medicine at Paris—namely, the conveyance of the disease by native troops sent to France from Tunisia, Algeria, or Morocco, in all of which countries typhus fever remains endemic to this day. The peril of infection is largely removed by the knowledge of its existence, for thorough methods to combat it have already been arranged. The danger from typhus is much greater in Eastern Europe, though the West is not altogether without its share of risk.

Typhus fever is endemic in Turkey and Egypt, in both of which countries the allied troops are in contact with the enemy, and an epidemic might develop among our own fighting men, spreading from our prisoners, if the most elaborate precautions were not being taken. Never before in the history of the world have such enormous forces been assembled together as those now facing each other in Europe from Flanders to the Dardanelles; but it may also be added that never before have medical science and military hygiene been in a better position to cope with the dangers that may arise from typhus fever or other epidemic diseases. We may confidently rely on the Army Medical Departments of the allied armies to use all the means which science and experience have placed in their hands to avert the ravages which might otherwise occur amongst their mighty hosts. And one of the most effective means is the destruction of vermin.

The Treatment of Cleft Palate.

THE most practical problem in connexion with congenital cleft of the palate is the best method of treatment, though discussion should and will continue as to etiology. A decision as to the best method of dealing with this most troublesome deformity will be acknowledged by all to be of the utmost importance, for the affection of speech which accompanies an untreated cleft

palate is a serious handicap in after-life. In the case of many lesions or abnormal conditions the ultimate decision as to the best method of treatment may be left to general impressions derived from multifarious records, but where the records tell no common tale it is far wiser to let the decision depend on statistical facts. This is the right way in which to approach the question of the treatment of cleft palate; and in his recent Hunterian lecture (concluded in our present issue) Mr. H. BLAKEWAY, by considering the matter from the statistical side, puts the surgical profession in distinct debt to him for a noteworthy contribution to the subject.

At the present time there are two, or at the most three, methods of treating cleft palate which are in evidence, though from time to time several other operations have been brought forward. These are the methods advocated by Dr. T. W. BROPHY of Chicago, by LANGENBECK, and by Sir ARBUTHNOT LANE. Dr. BROPHY, at the Clinical Congress of Surgeons of North America, held in London last summer, explained to an interested audience his whole technique, the reasons for its employment, and his claims. He said "that the normal amount of tissue is there and should be used immediately to close what is in effect a wound," and inquired what surgeon would wait two years in order to close a wound. He laid stress on the broadness of the upper jaw in these cases of soft palate, and in particular insisted that the action of the tongue in the gap and the upward pressure of the lower jaw both produced a widening of the cleft. An interesting debate followed, in which Sir ARBUTHNOT LANE and Mr. JAMES BERRY put forward the arguments respectively for the flap method and the method of median suture, Sir ARBUTHNOT LANE attaching the same importance as Dr. BROPHY to immediate radical remedy, while Mr. BERRY considered that in the common, single or double, cleft palate, associated with harelip, while the harelip should be remedied in the earliest infancy, operation on the palate should be postponed until the second or third year of life. Mr. BLAKEWAY shows that the hypothesis on which BROPHY'S operation is founded is untenable. The well-known American surgeon holds that in a case of cleft palate the two maxillæ are too far apart by exactly the amount of the palatal cleft, and he deduces from this that the correct way to treat a cleft palate is to push the two maxillæ together at a very early age, when such a procedure is possible. Mr. BLAKEWAY, however, has proved by a series of careful measurements that in the majority of normal infants the upper alveolar borders are wider apart than the lower, and that the difference noticeable in cases of cleft palate is often not much greater than that seen in children born with fully united palates. In practice, too, it has been found that it is nearly always impossible to bring together more than the alveolar arch, while the cleft itself is very little modified, but, of course, this narrowing of the alveolar arch is productive of improvement in the appearance of the face, produced by the bringing of the nose to the mid-line. Mr. BLAKEWAY concludes that it is possible that BROPHY'S method may be used in exceptional cases, but not as a routine operation, and with this conclusion we concur. Of the two other methods we have, first, that which was systematically practised by LANGENBECK, and secondly, that with which the name of Sir ARBUTHNOT LANE is most closely associated. To estimate the comparative value of these two methods we have to consider both the rate of mortality after the operation and the functional value of the result. The median-suture method of LANGENBECK has a very low mortality; indeed, in a series of 154 cases operated on by Mr. BERRY there were no deaths at all. On the other hand, in a series of 100 consecutive cases treated by the flap method employed by Sir ARBUTHNOT LANE there were 19 deaths. This death-rate is no disparagement to the skill of the surgeon, but must be ascribed wholly to the early age at which the operation is performed and the severity of the procedure. It is true that the advocates of the flap operation claim that there is a grave mortality from malnutrition amongst harelip children who are untreated, and that the operation soon after birth saves lives that would otherwise have been lost, but the data for such an opinion are wanting, and probably the risk of death from malnutrition has been over-rated. In this direction further figures are wanted, and the question of causation—heredity, maternal injury, even maternal impressions—should be looked into and not treated as of merely academic interest.

When we turn to the ultimate conditions we find that by either method excellent functional results have been obtained in some cases, but the proportion in which the issue is good is greater with the median-suture method, for here the cicatrisation is less marked. Mr. BLAKEWAY has himself examined a large number of the children on whom these operations have been performed. On the whole, therefore, statistics point to the view that the median-suture method offers the best chance of a satisfactory outcome, and remedy is obtained with less risk to the life of the patient.

COMPULSORY NOTIFICATION OF CHICKEN-POX IN LONDON.—In October last the Lambeth borough council suggested that the incursion of large numbers of refugees and others from the continent made it desirable to make chicken-pox compulsorily notifiable, since mild cases of small-pox might be diagnosed as chicken-pox. The London County Council decided at that time not to take action, but recently cases of small-pox have occurred, and on March 9th the Council, by special resolution, made chicken-pox notifiable within the administrative county until June 30th, 1915. The Local Government Board had notified its approval in advance.

Annotations.

"Ne quid nimis."

THE SOLDIERS' FOOD.

THE prolonged hearing of a summons against Messrs. J. Lyons and Co. in respect of beef alleged to be unfit for food, but intended for troops quartered at the White City, ended in the conviction of the caterers and the imposition of the maximum fine of £50, coupled with £70 costs. Mr. Fordham, who heard the case at the West London police-court, had an early difficulty in dealing with it owing to his having omitted to point out to the defendants that they could claim trial by jury. This, however, was apparently rectified by recommencing the hearing, and the main point raised in defence was, briefly, whether unwholesome food was being prepared for the troops at the time when the Hammersmith borough council's representative first saw it or whether it had been withdrawn by the defendants' servants after detecting its condition. The evidence bearing on this point was of a contradictory character, and it would not be desirable to recapitulate and comment upon the learned magistrate's observations in announcing his decision, in view of an intimation by counsel that there will be an appeal, at which this question and the technical one indicated above may be further discussed. Mr. Fordham was himself satisfied that the defendants were to blame, and were seriously to blame, for the acts of their servants, and he concluded by saying that the Hammersmith borough council would not have done its "barest duty" if it had not taken proceedings. The council, therefore, and the medical officer of health, Mr. J. B. Howell, deserve congratulation upon the success which has been obtained by them at the present stage, and upon their intervention in a matter not likely to have come within the range of their previous experience. Before the war it might not have struck anyone that the supervision of the food of military forces, training in a particular neighbourhood owing to fortuitous convenience for billeting them, would be added as a duty to that already discharged with regard to the civil population by a medical officer of health. Whether this is wholly a good arrangement is for the consideration of the Government and of the military authorities, but we suggest to them that as they are spending money on feeding an army they should assist in providing supervision sufficient to secure the proper carrying out of their intentions. In this instance the actual arrangement in force at the White City seems to have been made between the caterers and the County Territorial Force Association for the feeding of not less than 10,000 men at the rate of 1*s.* 9*d.* per man per day. Such a rate should suffice for the provision of a sufficient supply of food not only sound but palatable, while leaving a fair margin of profit to the contractor. Has this been so either universally or even generally is a question which the British citizen would like to have answered satisfactorily. It may be an undesirable topic to investigate publicly at such a time as the present, but some day inquiry ought to elucidate it, and meanwhile every effort should be made to remove as far as circumstances permit, any cause for complaint and any suspicion that the country is not getting full value for the money that it is expending. It is not right that soldiers should be well fed and content in one place, when elsewhere others upon whom an equal amount is being spent have good cause to complain. The fact that many do not complain, but contentedly make the best of adverse circumstances which they did not bargain for, is entirely to their credit, but does not otherwise affect the matter. The recent case in West London is not alone in calling attention to soldiers' food and the conditions under which it is supplied. Recent correspondence in newspapers has shown that regrettable waste of provisions in army camps has taken place and is taking place. The extent to which this is preventable, and the possibility of introducing better training of caterers and cooks are large questions into which we do not now go. It would be difficult to introduce general improvement with any immediate effectiveness in a matter with regard to which as a nation we are at normal times indifferent, and no one suggests that the present conditions are bad as a whole. In the British Islands economical cookery, producing palatable and wholesome results, is insufficiently studied by a large proportion of the women of the working classes, and is considered beneath the attention of men. Hence for the classes who are able to eat outside their houses foreigners have for many years done business in towns wherever the demand has attracted supply. The result with regard to cookery for the new army, in circumstances admittedly unforeseen and wholly abnormal, has been that a very large number of those who have joined it have found the nature of the food an irritating hardship. This is certainly not due to niggardliness on the part of the Government, and, indeed, the profusion which appears to characterise the whole matter is not its least serious aspect. This feature, however, may perhaps lead to the ultimate improvement which is desired by all who wish to see no hindrance placed in the way of recruiting, and who hold that the spending of money by the State upon the food of its soldiers should have as its object the cultivation of health, strength, and contentment in them in the highest attainable degree. So far as the army engaged in fighting is concerned, it appears to be universally agreed that all circumstances being considered the arrangements made for supplying it with food have been admirable.

SKIN AND BODY SCRAPERS.

CERTAIN flint implements of the neolithic age have long been recognised as skin-scrapers, used probably in their day in the dressing of hides and skins. An "acheulite" now lies before us which many years ago belonged to the late Sir Joseph Prestwich. It was picked up by him when in the society of Boucher de Perthes and Sir John Lubbock at St. Acheul, near Amiens, as long ago as April, 1860. In shape it is roughly oval, is about ½ inch in thickness, 2 inches long, and 1½ inches wide. The edges have been chipped to a certain sharpness, and more than one "bulb of percussion" on both its faces prove it to be beyond doubt a flint worked by man. Sir Joseph Prestwich opined that it was held in the hand and used to scrape off hairs from the hides of animals. It is now thought to have been a razor. The question thereupon arises:

Did proto-man ever use such an instrument to scrape off his own body-hair, which must have been very thick and very hot, or, Job-like, to relieve an itching skin? The flint skin-scraper may indeed be the ancestor of the razor or of the body-scratchers which from the days of the potsherd of Job onwards have assumed various shapes—such, for instance, as a hand at the end of a rod—and been used in many lands either to destroy or evict the flea and the pediculus or to assuage the tortures of a surface eruption. Among the ancients the skin-scraper became in one of its forms the strigil, which was used in the routine of the bath, and is represented in the well-known statue by Lysippus of an athlete drawing such an implement over his forearm. The strigil is a curved and grooved metal instrument, which with its handle somewhat resembles a sickle. The ancients employed it to apply oil as well as to remove wet or perspiration from the skin—hence the groove. But it must have been tiresome to use, and was probably only a time-honoured survival from an age before cloths and towels were known, just as now the lecture survives in an age of books and print. There was a time, of course, when the strigil was the only thing possessed by man to dry himself with. This becomes apparent on referring to the fine collection of eoliths lately exhibited in the Museum of the Royal College of Surgeons of England by that indefatigable collector, Mr. Morris, of Lewes. Mr. Morris's graduated collection of early flints, arranged on the analogical principle, contains many specimens which sceptics have roughly refused to consider as in any way man's handiwork. In love with the Garden of Eden theory of the origin of man, many people are ready to maintain that palæontology is all moonshine, and it was surely somewhat in this spirit that the Anthropological Society applauded Mr. Dawson, of Piltdown skull fame, when he showed that a bag of starch can, when suitably sat upon, be broken up into all the well-known eolith shapes. Mr. Morris, however, agrees with him, and anyone who has watched the aboriginal flint-workers of Australia or the traditional gun-flint makers of Norfolk at work will be bound to admit that they often break their flints up by throwing a huge lump down and letting nature split out their working material. Those, however, who have collected eoliths for many years and have candidly examined Mr. Morris's collection, will have come to the further conclusion that whole series of flints, found only in certain areas, such, for instance, as Professor Sir Joseph Prestwich's grounds at Darent Hulme on the North Downs, have certain points in common which prove them to be the work of Nature adapted by the hand of man. Such are the body-scrapers or hollow scrapers akin to the foot-scrapers of the Egyptians and the "body-stones" still used by modern savages. In shape these scrapers greatly resemble the cocked hats made out of paper by boys, the under side being usually polished and concave, and one if not both sides bearing traces of a more or less elaborate chipping process. It is probable that proto-man in Southern England was hairy and gorilla-like, that he suffered from heat or even vermin, and that he used body-scrapers to rub himself down. The stones certainly look as if they could have been used for some such purpose, and, though small, they exactly fill the hand. At the present time, according to Ratzel's "History of Mankind," the Tungooses and Samoyeds use more than one curved instrument in the dressing of skins, which owing to concavity suggest descent from these eolithic shapes. The Eskimos employ curving bones for the same purpose. After being for ages employed on the human skin the skin-scraper possibly came down in the world and turned into a furrier's tool. Thus by analogy the bee-hive house and round tower of the Stone Age in Ireland have become the hen-house in Dingle, and as such are still erected on the bee-hive pattern near Dunmore Head to-day. The bee-hive house, indeed, lingered as the pigsty in Wales when Stoddart drew one of his prettiest illustrations, and we see it still in the round hay-stack of North Britain. From the medical point of view it is interesting to surmise that our earliest ancestors suffered from hair, heat, and vermin, and that those best survived who scraped and rubbed so well and so often as to have polished whole multitudes of flints.

CAUTERISATION OF ADHESIONS IN AN ARTIFICIAL PNEUMOTHORAX.

ONE of the greatest obstacles to the induction of a complete pneumothorax and the consequent immobilisation of the lung is the presence of pleural adhesions, which are, unfortunately, exceedingly common in advanced pulmonary tuberculosis. Several operations have been devised with a view to securing the more or less complete collapse of the lung, even when it is almost totally adherent to the chest wall. The latest device comes from Sweden, where Dr. H. C. Jacobaeus and Dr. H. Tideström[1] have elaborated a contrivance enabling the operator to see the interior of the pleural cavity while carrying out small operations on the lung. Under local anæsthesia an ordinary sized trocar is passed through the chest wall into the pneumothorax, and through this trocar a thoracoscope of the size of a No. 12 Charier is introduced. When the pneumothorax is complete the whole of the upper lobe of the lung can be inspected without moving the thoracoscope; and the entire pleural cavity can be examined in this way without moving the instrument much. Dr. Jacobaeus has examined the pleural cavity in this way in about 200 cases without a single accident or great discomfort to the patient. When an adhesion is located, a small trocar is introduced in its neighbourhood, and through it a galvano-cautery is passed, its movements being controlled by the thoracoscope. In two cases the operation did no harm, but was ineffective, presumably because the adhesions were too extensive to be severed in this manner. But in a third case the operation was most successful. The patient was a nurse, aged 22, the whole of whose left lung was diseased. The sputum contained numerous tubercle bacilli, and fever persisted in spite of sanatorium treatment. The left lung was acccordingly treated with injections of nitrogen, and its compression was complete except over a cavity, the collapse of which was prevented by a fibrous band passing from the lung to the chest wall. The thoracoscope was introduced through the fourth intercostal space, and the galvano-cautery through the third space in the anterior axillary line. The adhesion was severed in less than a minute, and the lung was then seen to collapse completely. After a few days of slight fever the patient rapidly recovered, and the sputum dwindled till it disappeared altogether. Dr. M. D. Jacobsson[2] has also succeeded in severing pleural

[1] Hygiea, vol. lxxvi., No. 15.
[2] Ibid., vol. lxxvi., No. 17.

adhesions with a galvano-cautery, the movements of which he controlled under the X rays, but he admits that the technique elaborated by Dr. Jacobaeus and Dr. Tidestrom affords greater facilities for this undertaking.

THE BLOOD PICTURE IN MILIARY TUBERCULOSIS: ITS DIAGNOSTIC VALUE.

IT has been pointed out by Matthes in the *Medizinische Klinik*, 1912, that in miliary tuberculosis there occur a relative increase of the polymorphonuclear leucocytes and a relative decrease in the percentage of lymphocytes. The total count of white cells may be either normal—that is to say, anything between 5000 and 8000 per cubic millimetre—or less than normal. From Professor Matthes's clinic in Marburg comes a paper by P. Wack, published in the *Deutsches Archiv für Klinische Medicin* (1914, vol. cxv., p. 596), which seems further to confirm this observation. In nine cases of miliary tuberculosis the blood was examined; in all but one of these cases the diagnosis was confirmed ultimately by post-mortem examination. The odd case was a straightforward one of tuberculous peritonitis and miliary tubercles elsewhere. A typical blood count in such a case (Case 7 of the series, for example) shows as follows:—

	Normal.	Miliary tuberculosis.
Leucocytes	5000 to 8000	 6400
Polymorphs	70 per cent.	..... 88·5 per cent.
Lymphocytes	25 ,,	..... 8·5 ,,
Other elements	2 to 5 ,,	..... 2·5 ,,

In some cases the proportion of polymorphs is not so high, in others it may be extraordinarily high—e.g., 94 per cent. of all white elements (Case 7). It is interesting to note that as the case progresses the excess of polymorphs over lymphocytes increases; this is well shown in Case 1 of P. Wack's series. The patient was under continuous observation for the last seven weeks before her death and the blood was examined 21 times. For the first three weeks of this period the proportion of polymorphs was about 70 per cent., a normal figure, and that of the lymphocytes was about 30 per cent., again fairly normal. Then followed during the last few weeks a progressive change of the blood picture till the typical lymphocytopenia and excess of polymorphs were well marked. Continuous blood examination, a leucocyte control, constitutes, so Naegeli suggests, as delicate an indication of the progress of the case as does the pulse and temperature curve. Lymphocytosis in this relation suggests a more favourable prognosis; excess of polymorphs, on the other hand, is less satisfactory, and may betoken secondary infection. It is of interest to note that the total leucocyte count may be below normal. As regards differential diagnostic value, abdominal typhus may show a marked leucopenia, even to only 1000, but there is relative excess of lymphocytes. Sepsis shows leucocytosis, not usual in miliary tuberculosis. Febrile pulmonary tuberculosis with few focal signs generally gives a lymphocytosis and the neutrophile cells are either normal or only slightly reduced. Finally, a remarkable example of the polymorphonuclear demand which these cases of miliary tuberculosis may provoke is quoted, when the blood picture certainly suggested an acute myelogenous leukæmia, which turned out to be miliary tuberculosis at the post-mortem examination. This case was interpreted as essentially miliary tuberculosis which had stimulated the marrow to produce the myelogenous unformed elements. A similar case of this character is also noted (Kast) in which there were 32 per cent. of myelocytes. The post mortem examination showed miliary tuberculosis and the marrow indicated no abnormality. This relationship of miliary tuberculosis to such forms of leukæmia is of interest, and the lesser marked blood changes as above noted seem to have a value of some degree, both for diagnosis and, perhaps, for prognosis.

THE OPPORTUNITY FOR WOMEN IN MEDICINE.

THE annual meeting of the New Hospital for Women on March 11th directs particular attention to the fact, which we have already commented upon, that now is an exceptional time for women to adopt a medical career. Among the cataclysmic results of the war is a shortage of doctors necessary to meet the needs not only of the army and navy, but of civil practice, hospital work, the health department, and other non-military public services. Moreover, the shortage in the immediate future is likely to increase rather than to diminish, for not only are many junior students interrupting their curriculum to go to the front in various capacities, but there is also a marked fall in numbers of those entering for a medical career, so that there will necessarily be a corresponding falling off of graduates some six years hence. This future shortage, even more than the present deficiency, forms a powerful justification for an increase in the number of women students of medicine. The proved capabilities of women in this direction are well demonstrated by Professor Howard Marsh,[1] who in an article in the *Cambridge Review* examines the question of what position women have, as a matter of fact, attained in the medical profession and what are their credentials for the practice of medicine. He points out that the entries at the London School of Medicine for Women are progressively increasing, and this year numbered 65, while the number of students now in the school is 220. In examinations women have attained very high distinction, having carried off gold medals in open competition with men in anatomy, physiology, midwifery (three times), surgery, medicine, forensic medicine (twice), and State medicine, in proportion to their relative numbers a very high percentage; and since the Conjoint Examination of the Royal Colleges of Physicians of London and Surgeons of England has been thrown open to them one woman has taken the F.R.C.S. Professor Marsh speaks from his own knowledge of women who display every endowment and qualification necessary for the higher levels of operative surgery and whose results are as favourable as any obtained by men in similar groups of cases, while in general practice and in the various departments of public health their efficiency and success have been conspicuous. Professor Marsh lays particular stress on the administration of anæsthetics as a test of efficiency, and states that out of the 3577 operations performed during the last seven years at the New Hospital for Women, where anæsthetics are invariably given by women only, there have been only two deaths under an anæsthetic, a truly remarkable result. Women are now filling, in a

[1] The Scarcity of Doctors, Cambridge Review, Feb. 24th, 1915.

most satisfactory manner, the post of resident medical officer at many provincial hospitals, and it was recently stated that Surgeon-General Sir Alfred Keogh had invited Dr. Flora Murray and Dr. Garrett Anderson, after seeing their work at the front, to come to London and take charge of a new military hospital to contain 500 beds, to be staffed entirely by women, women orderlies working under the sisters. A point that has been a source of great difficulty with regard to the employment of women in other pursuits in competition with men has been a tendency on the part of women to undersell men. It is satisfactory to learn from Professor Marsh that those in authority are taking measures for the prevention of this tendency in medicine. It is understood that when medical men return from military service the medical women who have acted as their substitutes will retire in their favour. This will in some cases constitute hardship, but no other course is possible or desirable. We are glad to feel sure, however, that these women practitioners who have done good work will readily find other openings, in view, not only of the shortage of medical men, but especially because of the enormous development of official medical service that has already taken place, and will probably continue to take place when the war is over.

SENILE PARAPLEGIA.

IN the *Medical Record* of Jan. 30th Professor M. A. Starr has described one of the maladies of old age which has received little attention either in text-books or in other forms of medical literature—senile paraplegia. Under this symptomatic title there appear to be included different pathological conditions, which, however, present a similar clinical picture. Senile paraplegia begins after the age of 65 years, the time depending upon the general vitality of the patient. He gradually becomes more feeble and notices first increasing disability in walking, going up stairs, or standing for any length of time. In the end he becomes bedridden. In some cases the weakness is attended by ataxia, which is more marked than the weakness. In other cases pain is a prominent symptom and is felt either on movement or on standing, although it may occur spontaneously. It is particularly severe after exertion and towards night. The pain is always attended by coldness of the feet and legs and not infrequently by sensations of numbness and tingling. Atrophy of the muscles is more marked than is usual in feeble old persons, and the tendon reflexes are lost. The limbs are usually flabby, cold, and blue, and not infrequently œdema occurs when the patient is out of bed. Occasionally loss of control of the sphincters occurs late in the case. Pain in the back and round the loins is common and may cause insomnia. As a rule the hands and arms are not affected. The cases seem to form three pathological groups: 1. The primary disease lies in the muscles and may be likened to a slowly progressive muscular dystrophy. 2. There is evidently an active degenerative neuritis characterised by spontaneous pain, burning and tingling, and tenderness along the nerves. Areas of hyperæsthesia and anæsthesia in the legs are not uncommon. The anterior crural nerves appear to be more frequently affected than the sciatic, and not infrequently there is considerable pain in the rectum and bladder, showing that all the branches of the sacral plexus are involved in the degeneration. 3. The spinal cord is evidently the seat of disease. There are ataxia and involvement of the sphincters in the early stage. The muscular atrophy appears to be more rapid than in the previous groups, and in the later stages trophic symptoms in the skin are more frequent. Professor Starr suggests that the pathological condition is venous congestion of the lower portion of the spinal cord leading perhaps to œdema. The prognosis in all cases is manifestly unfavourable, but there may be great variations in the course and marked improvement, more or less temporary, under treatment. In the muscular cases a stimulating diet with meat and fatty foods, diminution in the amount of salt taken, and administration of alcohol and small doses of strychnine will cause some arrest of the degeneration and improvement in the symptoms. Warm baths at a temperature of 100° F. for 20 minutes and mild massage are beneficial. But in cases of neuritis baths and massage should be avoided on account of the tenderness, and warmth should be applied by heating the bed. In the spinal cases hot and cold douches to the back, massage of the back and limbs, and dry cupping of the spine are of service. The patient should lie prone so that gravity may aid in emptying the congested veins. Senile paraplegia is easily distinguished from spastic paraplegia due to lateral sclerosis, in which muscular rigidity with exaggerated knee-jerks are present. It should not be confounded with the paraplegic condition of slow onset appearing late in Parkinson's disease, where the tremor is usually a prominent symptom and the gait is slow, shuffling, and stiff, with a tendency to fall.

PROLONGED VACCINE THERAPY IN TYPHOID FEVER.

Professor V. Pensuti publishes in a recent issue of *Il Policlinico* a further series of 69 cases of typhoid fever treated by vaccines. These cases seem to show that vaccine therapy in this disease has an indisputable efficacy, possesses the requirements of a specific treatment, and if in some cases the evidence of its utility has not been immediately apparent later observations on patients, and on the behaviour of the course taken by the infection, render its application more clear and profitable. Having noticed that typhoid patients, whether they recovered naturally or by vaccine treatment, were prone to have relapses, Professor Pensuti took note of the number of relapses occurring in a group of cases vaccinated with a limited number of injections. He found a relapse occurred in about one out of every four. He then had recourse to 31 new cases in which, having vaccinated them with doses believed to be sufficient, he repeated for some time a daily small injection of vaccine and kept them under observation as long as possible after the cessation of fever to notice whether relapses took place. The doses employed were 12,500,000 daily, and in a child aged 5 years and in another aged 7 years 6,000,000. These injections were given for 11 to 25 days and the period of observation lasted for about three weeks. None of these cases had any relapse, although occasionally there were rises of temperature for a period of from four to six hours with a maximum of 37°–38° C. With regard to the effect of the treatment on the duration of the illness, Professor Pensuti records a fair number of cases in which the fever promptly came to an end; the effect on the general condition and

on the various symptoms was none the less marked, while albuminuria diminished and disappeared so rapidly as to render it difficult not to admit a causal connexion between this fact and the vaccination.

THE Lumleian lectures will be delivered at the Royal College of Physicians of London by Dr. Sidney Martin, on Non-ulcerative Infections of the Colon, on March 18th, 23rd, and 25th at 5 P.M.

Sir Almroth Wright will deliver a special lecture before the Royal Society of Medicine on Tuesday, March 30th, at 5 P.M., on the Septic Infection of Wounds, in which he will lay before the profession the results of his investigations and research with the Expeditionary Force.

AT a meeting of the Council of the Royal College of Surgeons in Ireland held on March 4th, Mr. F. Conway Dwyer, the President, being in the chair, Dr. Richard Travers Smith was elected to the Professorship of Materia Medica, Therapeutics, and Pharmacy in the Schools of Surgery.

IT has been decided that the annual meeting of the British Association for the Advancement of Science shall take place in Manchester in September. Owing to war conditions, however, in place of offering the customary elaborate social hospitality, it is held preferable, while maintaining unbroken the long continuity of yearly meetings, that the proceedings this year should be restricted to the more purely scientific functions.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

MEETING OF COMITIA.

AN extraordinary Comitia was held on March 4th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following communications were received:—1. From the Secretary of the Royal College of Surgeons of England, dated Feb. 15th, reporting proceedings of the Council of that College on Feb. 11th. 2. From the secretary of the Charity Commission, dated Feb. 19th, enclosing a scheme for the administration of the charity, to be called "The British Hospital for Mothers and Babies," to the managing committee of which the College consented to send a Representative Member. It was resolved that it should be left to the President to nominate a representative.

RED CROSS WORK IN DEVONSHIRE.—At present there are 21 Red Cross hospitals, which are occupied by wounded soldiers, in the county of Devon.

THE LATE DR. A. F. LEGGE.—Our Aberdeen correspondent writes: "The late Dr. A. F. Legge, who was killed in the recent riot at Singapore, was the son of the late Rev. James Wilson Legge, teacher at the Aberdeen Grammar School. He graduated M.B., Ch.B., at Aberdeen University in 1912, and was for a time house surgeon in the Aberdeen Royal Infirmary, and subsequently house physician at the Aberdeen Royal Asylum. Early last year he went to Singapore to take up duty in the asylum there, and on the outbreak of war volunteered for service with the contingent of the Malay Federated States. When in Aberdeen Dr. Legge was a prominent and popular figure, taking a worthy part in the social and athletic life of the city and university."

MEDICAL PRACTICE AT GILLINGHAM AND CHATHAM.

(FROM OUR SPECIAL COMMISSIONER.)

I HAD two reasons for going to Gillingham to see how the present national conditions affect the well-being of the medical profession. Firstly, Gillingham, though not in the borough, is really an extension of Chatham, and personally concerned in much of the naval and military activity. Next, it may be remembered that Gillingham was one of the principal storm centres in the resistance organised by a large section of the medical profession against the working of the National Insurance Act.[1]

Though two years have elapsed since on the occasion of a previous visit I described the attitude of Gillingham doctors towards the National Insurance Act, the practitioners who were opposed to the Act then have remained unchanged in their attitude and still refuse to go on the panel. It was therefore necessary to import medical men to make up the Gillingham panel. But in spite of this addition to their numerical strength the medical practitioners at Gillingham are fully employed, the war circumstances producing this result. Some of them may also find that the increase of their income is not in proportion to the increase of the work they have to do, but that is another question. The medical practitioners of Gillingham have had sufficient forethought not to allow themselves to be placed in the awkward position which I described a week or two ago to have overtaken their colleagues in Great Yarmouth.[2] The British Medical Association suggested that the medical profession throughout the country should offer to attend gratuitously all the *necessitous* dependents of soldiers who had volunteered for the front. On August 7th, immediately after the declaration of war, at a special meeting of the London Panel Committee, the doctors on the panel were invited to express their willingness to attend, free of charge, *necessitous* dependents of reservists called to arms. This patriotic impulse, however, soon extended without anyone seeing at once whither a heedless generosity might lead. The medical practitioners of the entire kingdom, whether on the panel or not, offered their gratuitous services in this way, and instead of the dependents of the reservists it became the dependents of all those who enlisted. Nobody in those days foresaw the size of our army and no one knew anything for certain about the pay and allowances of the men. And to make the effect of miscalculation worse the word *necessitous* qualifying the dependents was withdrawn. Had that word been maintained no harm would have been done.

Gratuitous Attendance on Recruits.

Doubtless the practitioners of the three towns—Rochester, Chatham, and Gillingham—were better acquainted with the conditions of military and naval service than their London brethren, and indeed than doctors in most of the other parts of the country. In any case, they refused to attend gratuitously all the dependents of soldiers or sailors. They saw no reason why they should thus attend families who had always paid medical fees and were now better off than before the war. Every medical practitioner, panel or not, showed himself most willing to give free and devoted attention to *necessitous* dependents, and a great deal of gratuitous work is being done, but not for the well-to-do families of men who have enlisted.

It was the more necessary to draw the line somewhere as the civil medical practitioners do a great deal of gratuitous work for the army. At Gillingham no less than 10,000 soldiers were billeted on the population or lodged in any building that could be made available for such a purpose. There was no military medical staff attached to this large body of recruits, and they were, of course, liable to the ordinary sickness affecting a population of this description. When one of these recruits falls ill in a private house where he is billeted, and he or the landlord sends for a medical man, a small fee is occasionally forthcoming; but more often it is not. There is no guarantee that the medical attendant will receive anything for the trouble he has taken. Then it sometimes happens that one or more of

[1] THE LANCET, March 22nd, 1913, p. 854.
[2] THE LANCET, Feb. 13th, 1915, p. 342.

these young men collapse on the parade ground. In that case the nearest practitioner is sent for. Naturally he responds to the call. Yet he is never paid; often he does not receive any thanks for the trouble he has taken. In the military organisation such cases were not foreseen, and no arrangements were made either for the courtesies of professional life or for the payment of fees.

Trade and Mourning.

It may be said, with some measure of confidence, that the medical profession in the three towns is making more than it is losing in consequence of the war. The great influx of recruits naturally brings money, and the people are for the most part not only fully employed, but they are working overtime. On the other hand, many of the ships that have been sunk during the course of the war were commissioned at Chatham. The wives and families of the sailors, whose loss we deplore, live in the three towns. I was told that there were 60 widows in one street. There is every reason to hope this is an exaggeration, but that such a figure should be mentioned illustrates how much this neighbourhood has suffered from the naval disasters. Of course, if a sailor who thus gallantly lost his life had not settled his doctor's bill it is hardly likely his bereaved family will be pressed for payment. In this manner practitioners have experienced some losses, amounting, in one or two cases, to quite a considerable sum. Then there is always a tendency to exploit such situations to the detriment of the medical profession. Thus a sorrowful widow presents herself to a practitioner at Gillingham. Judging by the distress she manifested he at first inferred she had lost her husband in one of the ships recently torpedoed. He was therefore quite disposed to give her his best care gratuitously. But on inquiry he found that, though she undoubtedly was a sailor's widow, her husband died before the war began; that she was in receipt of a pension; that she was in full employment and earning good wages; and finally, that she had two sons, also fully employed, and one of them was in a position to assist her if necessary.

Loss of Time.

Medical practitioners, whether on the panel or not, have also to give a good deal of time to the signing of identification papers. To obtain a separation allowance someone in a good position must testify that the bearer is the person entitled to the money. A clergyman or a doctor is generally selected for that purpose, and as it is better known when the doctor will be found at home most persons appeal to the latter. Again, if the person is ill and cannot go to draw the money, then a medical certificate must be obtained to that effect, so that someone else may receive the money on the patient's behalf. Such applicants not only crowd the waiting room, but sometimes add to the discomfort by bringing with them the children they fear to leave alone. If a real patient calls in the middle of such a scene, and his circumstances permit, he postpones his visit and perhaps forgets to return. Sometimes total strangers will call for a certificate, and are quite surprised because a practitioner does not take them at their word. One case came to my notice of an applicant who wanted a doctor to certify she was the wife of a soldier, so that she might draw her allowance. She had only just come to the town and no one knew her; fortunately she was ultimately able to bring her husband from his regiment to Gillingham and certify she was his wife, and then the doctor signed the certificate. This meant two or three visits paid to the doctor in question and lengthy expostulations and explanations. It implied a good deal more than the professional quarter of an hour, for which no fee was offered or could be claimed.

A continuous pressure is brought to bear upon the medical men also to obtain incorrect certificates. This is especially the case on the part of soldiers who have exceeded their leave and want to prove they were ill. Then there is an idea prevalent that it suffices to be in any way connected with the army or navy to have a right to any medical practitioner's gratuitous services.

Thus it comes about that the war has entailed on the practitioners of Gillingham a good deal of unpaid work and much loss of time. On the other hand, at least in the three towns taken together, there are more money, good wages, and less unemployment, so that a large section of the popu'ation should be better able to pay the medical adviser.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet: Francis Julian Richmond Cowie (dated March 2nd) and Alec George Holman (dated March 3rd).

The following appointments have been notified:—Fleet Surgeon (retired): L. Bidwell to the *Marmora*. Surgeon: H. E. R. Stephens to the *Vivid*, additional, for disposal. Temporary Surgeons: W. P. Cowper to the *Vivid*, additional, for Plymouth Hospital; J. Morrison to the *Vivid*, additional, for R.N. Barracks; J. F. Quigley to the *Vivid* and J. Judson to the *Pembroke*, both additional, for disposal; F. J. R. Cowie and A. G. Holman, both to the *Victory*, additional, for disposal; E. I. Parry to the *Roxburgh*; and W. A. Mills to the *Indus*.

ROYAL NAVAL VOLUNTEER RESERVE.

The following appointments have been notified:—Surgeons: W. J. A. Quine to the *Collingwood*; and D. A. Macpherson to the *Vivid* and H. S. Reid to the *Victory*, both additional, for disposal.

ROYAL ARMY MEDICAL CORPS.

Major Henry M. Nicholls to be Lieutenant-Colonel (dated March 1st).

The undermentioned to be temporary Captains:—Dated Feb. 15th: Arthur Corrie Keep. Dated Feb. 16th: George Stoker. Dated March 5th: Temporary Lieutenant Arthur Martin Leake, V.C.

The undermentioned to be temporary Lieutenants:—Dated Dec. 1st, 1914: William Bradshaw Davy and John Ferguson Hutton. Dated Feb. 1st: John Anthony Freeman Hatch. Dated Feb. 2nd: George Alexander Shiel. Dated Feb. 3rd: Matthew Hamilton Fleming. Dated Feb. 10th: Frederick Andre Mills, William Tregonwell Collier, and Claude William Scott Saberton. Dated Feb. 11th: Wallace Charles George Ashdowne. Dated Feb. 12th: John Telfer Smeall, Edward Brice Cooper Mayrs, and John Joseph Dunne. Dated Feb. 13th: Harold Arthur Rowell and Ifan Septimus James. Dated Feb. 14th: Richard Desmond Fitzgerald, Louis Laurance McKeever, and Augustine Sargood Fry. Dated Feb. 15th: Reginald Lionel Ernest Downer, Henry Williams Beresford Danaher, Edward Samuel Gooddy, Harold Denny Duke, Carl Frederick Anthonisz, Charles William Donald, Burgess Barnett, John Harold Wrightson, Henry Joseph Milligan, William Richard George Hamilton, Ninian Edward Miles Home-Hay, David Carnegie Alexander, Alexander Jamieson, Ernest Cromwell Peake, Harold Ackroyd, Hugh Watson Fox, Charles Spencer Palmer, Sydney Gordon Tippett, Arthur Ryland Chavasse, George William Davis, Frank Gravely, Gavin Muir, Frank Gardyne Milne, David Anderson Duncan Kennedy, William Harold Butler, John Perry Walker, Thomas Barrington McKee, Meredith Milton Townsend, George Mahony Mayberry, Gerald Davenant Shann, and Frederic Charles Barlow. Dated Feb. 16th: John Kirton, Hayden Peters, William Frank Morgan, Edward Johnson, Robert Condy, Ernest Bosdin Leech, and Ernest Wells Witham.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. R. Elliot, R.A.M.C., has been appointed Assistant Director of Medical Services in the 4th (Quetta) Division as a temporary arrangement. Lieutenant-Colonel H. Fooks has been appointed temporary Assistant Director of Medical Services, 6th (Poona) Divisional Area and the Bombay Brigade. Lieutenant-Colonel R. J. Windle, R.A.M.C., has been appointed temporarily to the charge of the Poona Brigade. Lieutenant-Colonel C. H. Hale, R.A.M.C., has been appointed temporary Assistant Director of Medical Services at Abbottabad and Sialkot Brigades. Lieutenant-Colonel S. C. Philson, R.A.M.C., has been appointed temporary Assistant Director of Medical Services, Presidency Brigade. Major M. Corry has been appointed officiating Chief Medical Officer, Delhi Province, with effect from Dec. 1st, 1914. Lieutenant-Colonel F. J. Dewes has been appointed to the Medical Charge of Depôt, 28th Punjabis, Reserve Centre, 3rd, 21st, and 22nd Mule Cadres, with effect from Nov. 9th, 1914; to the Depôt, 27th Punjabis, with effect from Nov. 10th; and the Depôt, 25th Punjabis, with effect from Dec. 23rd, in addition to his own duties. Major L. E. Gilbert has been appointed to the officiating Medical Charge of the 42nd Deoli Regiment and charge of the Cantonment General Hospital, Lahore Cantonment, with effect from Jan. 26th, vice Major D. S. O'Keeffe.

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Royal Army Medical Corps.

John Dillon MacCormack to be Lieutenant (on probation). Lieutenant John Brumwell resigns his commission on appointment to the Royal Naval Volunteer Reserve.

TERRITORIAL FORCE.

Army Medical Services.

Lieutenant-Colonel Henry George Falkner, from Attached to Units other than Medical Units, to be Assistant Director of Medical Services, Northumbrian (Reserve) Division, with the rank of Colonel (temporary).

Royal Army Medical Corps.

Yorkshire Mounted Brigade Field Ambulance: Captain John Hepple to be Major (temporary).

2nd East Anglian Field Ambulance: Captain Rees Phillips to be Major (temporary). Frederick George Sharp to be Lieutenant.

3rd West Lancashire Field Ambulance: Walter Richards Stephen to be Lieutenant.

1st London (City of London) Field Ambulance: Lieutenant Martin B. H. Stratford, from Attached to Units other than Medical Units, to be Lieutenant.

3rd London (City of London) Field Ambulance: Lieutenant Robert W. A. Salmond, from 1st (City of London) Field Ambulance, to be Lieutenant.

3rd North Midland Field Ambulance: Thomas Lovett to be Lieutenant.

1st Northumbrian Field Ambulance: Kirton Ivor Seager Smith to be Lieutenant.

3rd West Riding Field Ambulance: John Stratford Hall to be Lieutenant.

1st Welsh Field Ambulance: John Sloan Tomb to be Lieutenant.

1st London (City of London) General Hospital: Lieutenant-Colonel Walter A. Atkinson resigns his commission owing to ill-health, and is granted permission to retain his rank and to wear the prescribed uniform.

1st East Anglian Field Ambulance: Lieutenant Thomas Vicars Oldham, from Attached to Units other than Medical Units, to be Lieutenant.

2nd West Lancashire Field Ambulance: Sydney Sharples (late Lieutenant, 2nd West Lancashire Brigade, Royal Field Artillery) to be Lieutenant.

2nd West Riding Field Ambulance: Benjamin Holroyd to be Lieutenant.

1st Eastern General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: Wilson Tyson and William Burton Marshall.

3rd Southern General Hospital: Robert Garner Lynam to be Captain, whose services will be available on mobilisation.

1st Northern General Hospital: Major William G. Richardson to be Lieutenant-Colonel. Captain Daniel W. Patterson to be Major.

Eastern Mounted Brigade Field Ambulance: James Lamberton to be Lieutenant.

1st Home Counties Field Ambulance: Richard Austin Freeman to be Lieutenant.

3rd Home Counties Field Ambulance: Captain Edwin A. Houchin to be Major (temporary).

1st East Lancashire Field Ambulance: Transport Officer and Honorary Captain George R. Wattleworth is granted the honorary rank of Major. To be Lieutenants: John Bruce (late Surgeon-Captain, 3rd Volunteer Battalion, The Lincolnshire Regiment) and William Lonsdale Cockcroft.

4th London General Hospital: To be Lieutenants: Arthur Fitzwilliam Comyn and George Arthur Ewart.

1st Scottish General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: John Taylor and Thomas Hood Wilson Alexander.

Sanitary Service: Major Peter Caldwell Smith to be Lieutenant-Colonel.

Attached to Units other than Medical Units.—Captain David R. Taylor to be Major. To be Captains: John Murdoch (late Captain, 7th Battalion Princess Louise's (Argyll and Sutherland Highlanders)) and Lieutenant Arthur E. Ridsdale. To be Lieutenants: Lieutenant Alfred Errol Delgado, from 1st East Anglian Field Ambulance; Charles Joshua Fox (late Lieutenant, 13th (County of London) Princess Louise's Kensington Battalion, The London Regiment); and William Horton Dale.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Major William Owen Evans, attached to Units other than Medical Units, resigns his commission on account of ill-health, and is granted permission to retain his rank and wear the prescribed uniform.

Captain William J. Foster, from the 3rd Southern General Hospital, to be Captain.

DEATHS IN THE SERVICES.

The death of Dr. Frederick Laing Norris, late chief Government medical officer, Antigua, British West Indies, is announced.

Major C. E. Fleming, R.A.M.C., on March 2nd, in his 41st year. During the South African War he volunteered as a civil surgeon and subsequently received a commission in the Royal Army Medical Corps. He was promoted Captain in 1903 and Major in 1912. In the South African War he took part in the operations in the Transvaal (Queen's medal with four clasps, and King's medal with two clasps).

THE INDIAN AMBULANCE GAZETTE.

It is interesting and eminently satisfactory to note that in spite of the numerous appeals for war and relief funds by other societies the Indian St. John Ambulance Association has supplied in the short period of three months gifts to hospitals representing 2½ lakhs of rupees (or £10,000), while it has organised many voluntary aid detachments, and been active in other directions for the benefit of the sick and wounded. The January issue of the *Gazette* contains much interesting matter, including an account of the Origin and Development of the Red Cross; a lecture on the Laws and Customs of War, so far as they Relate to the Sick and Wounded, by Major W. H. M. Spiller, R.A.M.C.; and a thoughtful address by Major-General May, C.B., C.M.G., on the Progress of the War.

RETIRED NAVAL SURGEONS.

In a recent number of the *Military Surgeon* (Chicago, U.S.A.) there is an interesting article by Surgeon (Fleet-Surgeon, that is) C. J. Decker, U.S. Navy, retired, on the employments suitable for medical officers who have retired. The problem introduced has solved itself for this country for the time being, the war demanding the help of all, but Surgeon Decker's views are none the less worth recording for future use. He holds that retired medical officers must find work or "feel lost and stay lost." He strongly dissuades retired officers from trying to become superintendents of civil hospitals, a line of work which in the United States is rapidly becoming a separate profession, and which in this country is becoming more organised and special. As for himself, he joined a large electrical firm and is concerned in elaborate experiments aiming to sterilise by the X rays the ova of beetles in tobacco and cereals as a commercial proposition. Further, he is working on a scheme for instantly killing gonococci by touching them with ultra-violet light (the difficulty seems to be to get the ultra-violet light to the gonococcus), and he has learned how to destroy the life of bacteria and certain other cells by high-frequency currents. The gist of the advice given is that the retired naval medical officer should turn towards scientific research for employment, but the conditions in the United States are obviously more favourable for such an employment of his talents than they would be in this country under existing conditions. The research energies of a man no longer young, who has not been in touch with the actual scientific work of any school for a long time, and has had but rare opportunities of acquiring new laboratory experience or perfecting his bench technique, would not find many outlets or command much remuneration. The career is far the most valuable, suitable, and agreeable one that could fall to the retired naval surgeon's lot, but it would require, save in special instances, a great deal of labour on his part to command success at it.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 9024 births and 7040 deaths were registered during the week ended Saturday, March 6th. The annual rate of mortality in these towns, which had been 18·9, 20·7, and 20·4 per 1000 in the three preceding weeks, further fell in the week under notice to 20·2 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 19·5, against a corresponding rate of 20·2 per 1000 in London. The annual death-rate last week ranged from 9·6 in Wimbledon, 10·3 in Edmonton, 10·6 in Hornsey, 12·5 in Leyton, and 13·1 in Southend-on-Sea, to 28·3 in West Hartlepool, 30·2 in Halifax, 30·7 in Cambridge and in Darlington, 31·2 in Bath, and 34·3 in Stockton-on-Tees.

The 7040 deaths from all causes were 49 fewer than the number recorded in the previous week, and included 618 which were referred to the principal epidemic diseases, against numbers increasing from 511 to 617 in the three preceding weeks. Of these 618 deaths, 331 resulted from measles, 110 from whooping-cough, 71 from infantile diarrhœal diseases, 64 from diphtheria, 32 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·8 per 1000, and coincided with that recorded in the previous week. The deaths attributed to measles, which

had been 207, 263, and 306 in the three preceding weeks, further rose to 331 last week, and caused the highest annual death-rates of 3·1 in Tottenham, 3·2 in West Hartlepool, 3·3 in Salford, 3·6 in St. Helens, 3·8 in Wolverhampton, 3·9 in Gateshead, 4·0 in Rotherham, 4·4 in Darlington and in Stockton-on-Tees, 5·7 in Northampton, and 7·2 in Cambridge. The deaths referred to whooping-cough, which had been 125, 135, and 111 in the three preceding weeks, were 110 last week; the highest death-rates from this disease were 1·2 in Brighton, in Reading, in Blackburn, and in Merthyr Tydfil, 1·5 in Bath, 1·6 in St. Helens, 2·0 in Aberdare, 2·1 in Bootle, and 2·2 in Ealing. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 70, 80, and 75 in the three preceding weeks, further fell to 71 last week, and included 16 in London, 6 in Liverpool, and 5 in Birmingham. The deaths attributed to diphtheria, which had been 66, 80, and 72 in the three preceding weeks, further declined to 64 last week, of which 16 occurred in London, 8 in Manchester, 5 in Liverpool, and 3 each in Stoke-on-Trent and Birmingham. The deaths referred to scarlet fever, which had increased from 22 to 38 in the four preceding weeks, fell to 32 last week; 7 deaths were registered in London, 4 in Birmingham, 3 each in Manchester and Newcastle-on-Tyne, and 2 each in Tottenham and Nottingham. The fatal cases of enteric fever, which had been 16, 17, and 13 in the three preceding weeks, further fell to 10 last week, and included 3 in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3041 in the 14 preceding weeks, had further decreased to 2943 on Saturday last; 298 new cases were admitted during the week, against 368, 295, and 302 in the three preceding weeks. These hospitals also contained on Saturday last 1569 cases of diphtheria, 240 of measles, 63 of enteric fever, 15 of whooping-cough, and 5 of small-pox. The 1781 deaths from all causes in London were 51 fewer than in the previous week, and corresponded to an annual death-rate of 20·6 per 1000. The deaths referred to diseases of the respiratory system, which had been 455, 459, and 476 in the three preceding weeks, fell to 468 in the week under notice, but were 208 above the number registered in the corresponding week of last year. The deaths from influenza numbered 48, against numbers rising from 44 to 83 in the four preceding weeks.

Of the 7040 deaths from all causes in the 96 towns 197 resulted from different forms of violence and 512 were the subject of coroners' inquests, while 1929 occurred in public institutions. The causes of 81, or 1·2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Bristol, Bradford, Portsmouth, Salford, and in 44 other smaller towns. Of the 81 uncertified causes, 16 were registered in Liverpool, 13 in Birmingham, 5 in Preston, 4 each in Stoke-on-Trent and Darlington, and 3 each in St. Helens, Rochdale, and Blackpool.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1236 births and 1043 deaths were registered during the week ended Saturday, March 6th. The annual rate of mortality in these towns, which had declined from 24·1 to 21·2 per 1000 in the four preceding weeks, rose to 23·2 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 22·9, against 19·5 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 12·9 in Clydebank, 14·7 in Perth, and 15·3 in Kirkcaldy, to 27·4 in Greenock, 33·4 in Falkirk, and 40·6 in Dundee.

The 1043 deaths from all causes were 87 in excess of the number in the previous week, and included 145 which were referred to the principal epidemic diseases, against 139 and 131 in the two preceding weeks. Of these 145 deaths, 91 resulted from whooping-cough, 21 from measles, 15 from diphtheria, 9 from scarlet fever, 7 from infantile diarrhœal diseases, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 3·2, against 1·8 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 81, 97, and 89 in the three preceding weeks, rose to 91 last week, and included 47 in Glasgow, 25 in Dundee, 8 in Edinburgh, and 3 in Greenock. The deaths referred to measles, which had been 11, 13, and 8 in the three preceeding weeks, rose to 21 last week, of which 10 occurred in Glasgow and 9 in Dundee. The fatal cases of diphtheria, which had been 6, 8, and 11 in the three preceding weeks, further rose to 15 last week, and included 6 in Glasgow, 5 in Edinburgh, and 2 in Aberdeen. The deaths attributed to scarlet fever, which had been 8, 10, and 11 in the three preceding weeks, fell to 9 last week; 4 deaths were recorded in Glasgow and 2 in Clydebank. The deaths of infants (under 2 years) referred to diarrhœa and enteritis, which had declined from 16 to 10 in the four preceding weeks, further fell to 7 last week, and comprised 2 each in Glasgow, Edinburgh, and Aberdeen, and 1 in Dundee. The 2 fatal cases of enteric fever belonged to Glasgow.

The deaths referred to diseases of the respiratory system, which had declined from 302 to 235 in the four preceding weeks, rose to 264 in the week under notice, and were 138 in excess of the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 34, against 26 and 34 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 663 births and 636 deaths were registered during the week ended Saturday, March 6th. The annual rate of mortality in these towns, which had increased from 24·0 to 27·6 per 1000 in the six preceding weeks, fell to 27·4 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 26·0, against corresponding rates of 19·5 and 22·9 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 33·4 in Dublin (against 20·6 in London and 21·8 in Glasgow), 26·9 in Belfast, 26·5 in Cork, 20·2 in Londonderry, 20·3 in Limerick, and 22·8 in Waterford, while in the 21 smaller towns the mean rate was 20·2 per 1000.

The 636 deaths from all causes were 6 fewer than the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 36 and 38 in the two preceding weeks. Of these 36 deaths, 11 resulted from infantile diarrhœal diseases, 10 from whooping-cough, 8 from measles, 4 from scarlet fever, 2 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·5, against corresponding rates of 1·8 and 3·2 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had been 13, 10, and 5 in the three preceding weeks, rose to 11 last week, and comprised 10 in Dublin and 1 in Belfast. The deaths referred to whooping-cough, which had been 17, 12, and 18 in the three preceding weeks, fell to 10 last week, of which 6 were recorded in Dublin, 3 in Belfast, and 1 in Larne. The fatal cases of measles, which had been 5, 6, and 8 in the three preceding weeks, were again 8 last week, and comprised 5 in Belfast, 2 in Portadown, and 1 in Dublin. The 4 deaths attributed to scarlet fever, of which 3 belonged to Belfast, were equal to the average in the earlier weeks of the quarter. The 2 deaths from diphtheria were recorded in Dublin and Belfast respectively, and the fatal case of enteric fever in Belfast.

The deaths referred to diseases of the respiratory system, which had been 182, 168, and 187 in the three preceding weeks, were 188 in the week under notice. Of the 636 deaths from all causes, 190, or 30 per cent., occurred in public institutions, and 7 resulted from different forms of violence. The causes of 26, or 4·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 1·2 per cent.

MEAT INSPECTION IN DEVONSHIRE.—The medical officer of health of the Torrington rural district, in his annual report for 1913, refers to the fact that at present there is no systematic inspection of meat in the district, and adds that in the few districts where a regular system of such inspection obtains evidence is found that a considerable amount of unsound flesh is put on the market month after month.

BRISTOL ROYAL HOSPITAL FOR CHILDREN AND WOMEN.—The annual meeting of the subscribers of this institution was held on March 2nd. The medical report stated that during 1913 the in-patients numbered 1121 children and 109 women; 3729 children and 1316 women were treated in the out-patient department, and 843 patients in the dental department. The financial statement showed the income amounted to £4714, and there was an unfavourable balance of £850. £2000 was recently bequeathed to the charity by the late Lady Greville Smith, to whom the hospital also owes the block of isolation buildings.

Correspondence.

"Audi alteram partem."

THE PROPHYLACTIC TREATMENT OF PUERPERAL INFECTION BY DILUTE SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—It has afforded us much pleasure to read in a letter by Dr. J. L. Moir in your issue of Jan. 16th of the favourable results he has obtained by the dilute sulphuric acid treatment in the prophylaxis of puerperal infection, because they still further afford evidence of the real value of this remedy in pyogenic infections. The subject of puerperal infection is such an important one that the extension of this mode of treatment as a prophylactic measure should be a valuable step forward.

We now draw special attention to the alteration in strength of acid. sulphuric. dil. as the official preparation in the new Pharmacopœia, 1914, because the strength has been reduced by 26·7 per cent. It thus becomes necessary to point out that the dose in this treatment must be materially increased to be equivalent to the 20–30 minim doses of the acid. sulphuric. dil. of the old Pharmacopœia. The dose should now be 25–35 minims. We cannot help feeling that great benefit might be derived by the administration of this remedy to the wounded in the present European War, as many of the infected wounds would, we believe, run a much more favourable course; indeed, it would be better if the treatment were adopted as a routine prophylactic measure. Sulphuric acid is so inexpensive, and so easily obtained, that even for such an extensive use the question of expense is negligible, and it has the additional advantage of acting as a direct tonic. Dr. Moir also raises an interesting point when he speaks of its effect in increasing the resisting power of the tissues to infection. This view seems to be borne out by expriments already conducted, but the question as to whether diminution of the alkalinity of the blood is responsible for the increase of the resisting power yet remains to be decided. The experimental work involved in the investigation of this subject is necessarily long and tedious and is still being conducted.

We are, Sir, yours faithfully,

J. REYNOLDS.

London, S.W., March 8th, 1915. RUSSELL J. REYNOLDS.

OPEN-AIR TREATMENT OF ACUTE SPECIFIC FEVERS.

To the Editor of THE LANCET.

SIR,—With regard to the open-air treatment of measles and Mr. J. Tertius Clarke's letter in THE LANCET of March 6th, I should like to bear my testimony to the effect of ventilation and light in diminishing the mortality of this disease. In Woolwich the death-rate from measles between 1891 and 1900 was 0·59. During the past four years it has been reduced to 0·19, or about one-third of what it formerly was. There is no question here of diminished prevalence, although if the death-rate was calculated on the number of children living at ages 0 to 5 the fall would not be so great as it appears, but even then it would be very considerable.

About the year 1900–01 the practice was commenced of distributing at all houses where cases of measles were notified by school teachers instructions as to keeping the windows open and blinds up, and keeping the child clean. To the adoption of these instructions I mainly attribute the fall of mortality. No doubt if more thorough open-air treatment was adopted the mortality might be still further reduced.—I am, Sir, yours faithfully,

SIDNEY DAVIES,
Medical Officer of Health.

Public Health Department, Woolwich, March 8th, 1915.

A GRIEVANCE.

To the Editor of THE LANCET.

SIR,—Most of the Insurance Committees throughout England are only paying 1s. a head on account for last quarter owing to the action of the Insurance Commissioners in preventing the societies sending lists of those members who have joined the army or navy to the committees concerned. This has resulted in a great many panel doctors being placed in very awkward financial straits at a time when credit is almost impossible to obtain and when many of us who have been called up were counting on the money thus held up to pay our substitutes. It is preposterous to suggest that even a quarter of the 8*d.* in addition to the 4*d.* already withheld will be necessary to balance the removals from our lists.

Now another grumble at the action of the War Office in paying officers with temporary commissions several shillings a day more than Special Reservists and Territorials who have taken the trouble to qualify for commissions in times of peace, who, moreover, have established practices and homes to keep up, whereas very many of the temporaries are young men with no responsibilities whatever. I know it will be said we did it with our eyes open. But we did not bargain for the War Office collaring practically three-quarters of the men we were looking to to fill our places when we were called up and thus making locums so expensive and unobtainable that in my own case I have had to pay £150 a year more than I get as army pay. Goodness knows, I do not wish to grumble, but I feel that I am voicing the opinion of practically all Reservist and Territorial medical officers.

I enclose my card and wish to remain,

Yours faithfully,

ANONYME.

THE SHORTAGE OF LOCUM-TENENTS AND RESIDENT MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—I may start with remarking that I have nothing to say against any medical agent or the secretary of any hospital. I have dealt once only with each of them respectively, and the agent kindly reduced his fees by one-half on my asking for consideration in special circumstances, and this although he had my signature to his full terms. The secretary to the hospital made my life there as comfortable as it possibly could be. I am a middle-aged practitioner now, and I remember both men with gratitude. I would like, however, to make a few remarks on what occurs outside the sphere of the agent or hospital secretary. The main reason for going into a hospital is to be taught. In many cases the staff are too busy to teach much, and valuable time is wasted. The agents are business men and quite fairly and at a

moderate commission cater to provide assistants or locum-tenents drawn largely from the impecunious members of the profession, in many cases too poor to buy or start a practice. This is the beginning (and it may be the end) of a man's professional life, and may in favourable circumstances (for them) like the present unfortunate war command an income of £5 or £6 a week. At other times if under, say, 45 a sum of £4 may be earned weekly. An oldish man is not wanted, and indeed could not stand the strain of a "farmed-out" practice. Unless the newspapers are lying grossly these sums are the wages of good artisans in each case, and that for say an eight or ten hours day. Another service which is grumbling is the asylum. Now it was well known in every medical school that suitable men were harder to find for that than any other service. Tempting salaries were offered to juniors to accept the minor posts and they found perhaps after a dozen years of waiting they were £70 or £100 a year better off. They had to live in some cases under Prussian discipline, were prohibited from marriage, cut off from all the social amenities of life unless in the rare instances where they became superintendents. Their condition then changed from servility to that of an autocrat in their own institution. Will any man in his senses educate a son at, say, an outlay of £1000 for a life like this? I think that sum might be much more advantageously employed in other ways, and so think many parents. I am, Sir, yours faithfully,

Feb. 27th, 1915. A. B. C.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Local Government Board and the Longford County Infirmary.

THE Local Government Board has communicated to the governors of the Longford County Infirmary its decision in regard to the proposal of the governors to dismiss Mr. Mayne, surgeon to the infirmary, for his action in refusing permission to another surgeon to operate in the infirmary. The Board refuses its assent to the dismissal of Mr. Mayne, who "acted within his discretionary powers under Article 11 of the Rules and Regulations of the County Infirmary."

Professorship of Materia Medica.

The President, Vice-President, and Council of the Royal College of Surgeons in Ireland have elected Dr. R. Travers Smith, F.R.C.P. Irel., to the chair of Materia Medica, Therapeutics, and Pharmacology in the School of the College.

"Medical Certifiers" and the Irish Medical Profession.

The recent appointment by the Insurance Commissioners of a number of "medical certifiers" is rousing bitter opposition in the medical profession in all parts of Ireland. A meeting of the medical men of Cork decided unanimously that all practitioners of the city should be called on to bind themselves to refuse to meet any certifier. Similar action has been taken in Co. Wexford, Co. Tyrone, and other districts. In Co. Cavan the position has been somewhat anomalous. The Commissioners induced some six practitioners of the county to accept posts as certifiers. A meeting of the local medical committee was summoned to consider their action. Owing to short notice and very severe weather only 11 members attended the committee. The six certifiers thus formed a majority and passed a resolution approving of their own conduct. All the other practitioners in the county—some 21 in number—have since formally repudiated the action of the committee, and demanded the abolition of the system of whole- or part-time certifiers.

The Belfast Literary Society.

Sir John Byers has been elected President of the Belfast Literary Society for 1915–16, a position he held before in the year 1885–86. It is one of the oldest institutions in Belfast, having been founded in 1801.

March 9th.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING the week the Fund has progressed well, and it will be seen by the statement of subscriptions that substantial contributions have been received from Canada and from Denmark. The Danish Union of Doctors has sent through Dr. Christophersen a second handsome subscription to the Fund of Kr.3488, equivalent to £178 8*s.* 3*d.* We shall publish a detailed list of the subscriptions in a later issue. The Canadian Committee for the Relief of the Belgian Medical and Pharmaceutical Professions forwards through Dr. J. Gibb Wishart, the President of the Ontario Medical Association, a further donation of $1000. The previous two generous contributions of this Committee, amounting to over £300, were credited to the Ontario Medical Association in error.

We publish this week a fourth list of subscriptions to the Fund which have been received by the treasurers of the Irish Branch, and a detailed list of the Scottish subscribers. When these large collections, and other subscriptions still remaining in the hands of local secretaries, are added to what has been received by the treasurer, Dr. Des Vœux, the total Fund will amount now to more than £10,000.

Distribution has proceeded regularly, and the applicants for assistance have shown themselves, personally or through Dr. Clément Philippe, very appreciative of the help rendered. The distribution of clothes now takes place from the Wesleyan Training College, 130, Horseferry-road, London, S.W., where Mrs. Leonard Colebrook, Mrs. de Bless, and Count Dru are rendering every help.

THE SCOTTISH FUND.

The following are the subscriptions making up a total of £888 5*s.* 6*d.* already in the hands of Dr. R. Cranston Low, Dr. Walker Downie, and Mr. J. Rutherford Hill, the treasurers and secretaries of this fund:—

	£	*s.*	*d.*
Sir Alexander R. Simpson...	20	0	0
Dr. Robert Thin	5	5	0
Dr. Byrom Bramwell ...	5	0	0
Dr. Robert McKerchar...	1	1	0
Dr. Norman Walker ...	5	5	0
Dr. Sargood Fry	2	2	0
Mr. A. Linton Logan ...	1	0	0
Dr. T. P. Stewart	2	2	6
Dr. Robert Stirling ...	2	2	0
Dr. W. P. Dester	0	10	0
Miss Aylett	0	5	0
Miss Nelson	0	5	0
Miss M. W. Fleming ...	15	0	0
Miss K. I. Fleming ...	15	0	0
Dr. Philip C. Borrowman	1	1	0
Dr. Hill Buchan	1	1	0
Dr. Alex. M. Easterbrook	1	1	0
Mrs. Legat	1	1	0
Dr. Barbour	25	0	0
Mr. Dwight Day	2	0	0
Dr. F. W. N. Haultain	10	0	0
Dr. J. R. Hamilton ...	5	0	0
Dr. Andrew C. Keay ...	4	12	6
Dr. Wm. Russell	10	10	0
Dr. R. Dods Brown ...	1	1	0
Dr. Melville Dunlop ...	3	3	0
Association of School Medical Officers of Scotland	5	5	0

	£	s.	d.
Dr. Harry Rainy	5	5	0
Dr. John Orr	2	2	0
Dr. D. Oliphant Nicholson	3	3	0
Dr. John Thomson ...	5	5	0
Dr. W. Hall Calvert ...	0	10	6
Dr. W. M. Selby	0	10	6
Dr. G. Minto Johnston	1	1	0
Dr. T. J. Thyne	3	3	0
Dr. Alex. Hendry	1	1	0
Dr. Jas. Wilson	2	2	0
Prof. J. C. McKendrick	1	1	0
Dr. John Playfair	5	5	0
Dr. Thomas Fraser ...	5	0	0
A Comrade	5	5	0
Dr. Allan Jamieson ...	10	0	0
Dr. J. W. Martin	0	10	6
Dr. A. Ogston	1	1	0
Dr. F. D. Boyd	4	4	0
Dr. Edwin Matthew ...	5	0	0
Dr. James Gowans ...	0	10	0
Dr. R. M. Ronaldson ...	1	1	0
Dr. A. Murray Drennan	2	2	0
Dr. Ian Struthers Stewart	1	1	0
Dr. R. D. Hotchkis ...	1	1	0
Dr. A. Crum Brown ...	5	5	0
Dr. Frances M. Harper	2	2	0
Major C. L. Williams, I.M.S.	1	1	0
Mrs. Low	1	1	0
Dr. F. F. Jones	0	5	0
Dr. Macdonald	2	2	0
Dr. Henry H. Robarts ...	1	1	0
Dr. C. M. Robertson ...	5	5	0
Dr. Claude B. Ker	3	3	0
Dr. Aitchison Robertson	1	1	0
Dr. G. C. Anderson ...	1	1	0
Prof. Ashley MacKintosh	10	10	0
Dr. Cranston Low	1	1	0
Dr. Robert Stirling (2nd contribution) ...	3	3	6
Dr. Stanley Fenwick ...	1	1	0
Dr. Lovell Gulland ...	10	10	0
Dr. Keppie Paterson ...	3	3	0
Dr. A. Macnaughton ...	1	1	0
Edinburgh Medical Curling Club...	4	0	0
Dr. Bruce McMoriand ...	0	10	6
Dr. Harriet McCloghry .	1	1	0
Royal College of Physicians of Edinburgh ...	105	0	0
Royal Colleges' Golf Club, Edinburgh ...	10	10	0
Mr. J. W. B. Hodsdon ...	21	0	0
Mr. Francis M. Caird ...	10	10	0
Mr. J. M. Cotterill ...	5	5	0
Dr. Charles W. MacGillivray	5	5	0
Mr. David Wallace ...	5	5	0
Dr. Logan Turner	20	0	0
Dr. George Mackay ...	5	0	0
Mr. Harold J. Stiles ...	21	0	0
Dr. R. McKenzie Johnston	3	3	0
Mr. J. W. Dowden ...	5	5	0
Dr. John M. Bowie ...	10	10	0
Dr. J. H. Gibbs	5	5	0
Mr. Alexis Thomson ...	2	2	0
Mr. D. P. D. Wilkie ...	2	2	0
Mr. L. F. Bianchi	2	2	0
Dr. William B. Dow ...	5	5	0
Dr. J. A. H. Duncan ...	1	1	0
Dr. Balfour Graham ...	1	1	0
Dr. A. G. Miller	0	10	6
Doctor's Daughter... ...	0	10	0
Mrs. Marian Wormull ...	0	5	0
Mr. John D. Malcolm ...	2	2	0
Dr. Harley P. Milligan	2	2	0
Lieut.-Col. Sir Joseph Fayrer, Bart.	2	2	0
Dr. W. Balfour Gourlay	1	1	0
Mr. John Chiene, C.B...	5	0	0
Major G. R. Livingston	1	1	0
Major William Haig ...	1	1	0
Dr. J. J. Wilson	1	0	0
Dr. Norman J. McKie ...	1	1	0
Dr. W. Huntington ...	2	2	0
Dr. John Sinclair	1	1	0
Dr. John Mackay	1	1	0
Dr. John W. Steven ...	2	0	0
Dr. W. B. MacTier ...	1	1	0
Miss L. de Menezes ...	0	5	0
Dr. J. Keith Robertson	1	1	0
Mr. George L. Chiene ...	2	2	0
Lieut. A. L. Christie, R.A.M.C.	1	1	0
Dr. George A. Dickson	2	2	0
Dr. Alexander Stewart	1	1	0
Dr. T. G. Nasmyth ...	10	10	0
Dr. Robert Rosie	0	10	0
Mr. A. A. Scot Skirving, C.M.G.	2	2	0
Dr. James C. P. Reardon	2	2	0
Dr. Mildred M. L. Cathels	1	0	0
Two Sisters	1	0	0
Mr. W. C. Teacher... ...	1	0	0
Dr. Lewis McMillan ...	0	10	0

	£	s.	d.
Prof. T. K. Monro... ...	5	5	0
Dr. John Barlow	5	5	0
Dr. D. Clark Laird... ...	1	1	0
Prof. Stockman	5	0	0
Dr. A. Maitland Ramsay	5	5	0
Dr. Walker Downie ...	5	5	0
Dr. Geo. Dickson	0	10	0
Dr. Wm. G. Dun	1	1	0
Dr. Wm. R. Jack	2	2	0
Dr. James McQueen ...	1	1	0
Dr. James Cairncross ...	1	0	0
Dr. Archd. McLean ...	1	1	0
Dr. James Craig	1	1	0
Dr. Geo. McIntyre ...	5	5	0
Dr. Robt. Jardine	2	2	0
Dr. Robt. Perry	1	1	0
Dr. David Yellowlees ...	10	10	0
Dr. J. R. C. Greenlees ...	1	0	0
Dr. Archd. Templeton ...	0	10	6
Dr. W. S. Paterson ...	1	1	0
Dr. Marguerite Wilson	0	6	0
Dr. Rob. N. White... ...	1	1	0
Dr. David Glen	1	1	0
Dr. Jas. McEwan	5	0	0
Dr. J. Maxtone Thom ...	1	1	0
Dr. Johnston Macfie ...	1	1	0
Dr. David McNicol ...	0	10	0
Principal Yule Mackay	2	2	0
Dr. Wm. Lawson	1	1	0
Dr. John Macintyre ...	3	3	0
Dr. A. T. Thomson ...	0	10	6
Dr. J. M. McGill	0	10	0
Lieut. K. B. Aikman, R.A.M.C.	2	2	0
Dr. Eliz. T. Gilchrist ...	5	5	0
Dr. Daisy A. McGregor	5	5	0
Dr. John L. Howie ...	1	1	0
Dr. R. Murray Lyon ...	2	2	0
Dr. Richard C. More ...	1	1	0
Dr. Lauder R. Oswald ...	3	3	0
Dr. David McKail	2	2	0
Dr. A. Galbraith Faulds	1	1	0
Dr. Jas. Macartney ...	1	1	0
Dr. Ebenezer Duncan ...	5	5	0
Dr. John Adams	10	10	0
Mr. A. E. Maylard... ...	10	10	0
Dr. Rob. Fullarton ...	2	2	0
Dr. John Patrick	1	1	0
Dr. David Watson	1	1	0
Dr. A. A. Gray...	2	2	0
A. McL.	1	1	0
Dr. Arthur Innes	0	10	6
Dr. G. Balfour Marshall	3	3	0
Dr. J. Grant Andrew ...	2	2	0
Dr. Maud Bennett... ...	0	10	0
Dr. A. W. Hannington	1	1	0
Dr. W. S. Syme (additional)	1	1	0
Dr. Nigel Stark	1	1	0
Dr. R. C. Robertson ...	2	2	0
Dr. Wm. A. Muir	2	2	0
Dr. John Sloan	1	1	0
Dr. R. M. Buchanan ...	1	1	0
Dr. J. Wilson Cameron	1	1	0
Dr. C. Syme	1	1	0
Lieut. W. Cameron Davidson, R.A.M.C....	1	1	0
Dr. W. L. Reid	3	3	0
Dr. A. Brown Watt ...	0	10	0
Dr. W. H. McWalter ...	0	10	0
Prof. Robert Muir	5	0	0
Dr. Robert K. Currie ...	2	2	0
Dr. D. K. Knox	1	1	0
Dr. Angus W. Cameron	1	1	0
Messrs. Duncan, Flockhart and Co.	25	0	0
Messrs. T. and H. Smith, Limited (second subscription)	25	0	0
Messrs. Harkness, Beaumont, and Co.	10	10	0
Messrs. Pinkerton, Gibson, and Co....	10	10	0
Messrs. Raimes, Clark, and Co.	10	10	0
Dr. James L. Ewing ...	5	5	0
Glasgow Apothecaries Co., Limited	4	4	0
Mr. J. Innes Fraser ...	3	3	0
Messrs. Davidson and Kay	2	2	0
Dr. J. Harvey	2	2	0
Mr. J. Hinksman	2	2	0
Dr. R. B. Proudfoot ...	2	2	0
Messrs. W. E. Taylor and Co.	2	2	0
Messrs. H. C. Baildon and Son...	2	0	0
Mr. John S. Gibb	2	0	0
Mr. A. G. Bruce	1	1	0
Mr. A. Chalmers	1	1	0
Mr. F. Crossling	1	1	0
Mr. W. S. Culbert	1	1	0
Mr. Wm. Doig	1	1	0
Mr. R. G. Drummond ...	1	1	0
Dr. J. Dunlop	1	1	0
Mr. John Fyfe	1	1	0
Mr. Wm. Giles	1	1	0

	£	s.	d.
Mr. J. P. Gilmour	1	1	0
Mr. W. S. Glass	1	1	0
Mr. James Henry	1	1	0
Mr. J. Ruthertord Hill	1	1	0
Mr. James Jack	1	1	0
Mr. John McCowan ...	1	1	0
Mr. J. D. MacLeod... ...	1	1	0
Mr. J. McNaughton ...	1	1	0
Mr. J. B. Mitchell	1	1	0
Mr. David Moir	1	1	0
Mr. James Nesbit	1	1	0
Mr. Wm. Ogston	1	1	0
Mr. Balfour Reekie ...	1	1	0
Mr. J. R. Reith	1	1	0
Mr. D. S. Robertson ...	1	1	0
Mr. Chas. Simpson ...	1	1	0
Mr. Alexr. Walker... ...	1	1	0
Mr. Thos. Wilson	1	1	0
Mr. John Cumming ...	1	0	0
Mr. A. Glen	1	0	0
Mr. James Lennox... ...	1	0	0
Rev. R. McIntosh	1	0	0
Mrs. McIntosh...	1	0	0
Mr. J. L. Reid	1	0	0
Mr. W. R. Craig	0	10	6
Mr. James Crombie ...	0	10	6

	£	s.	d.
Mr. Thos. Dunlop	0	10	6
Mr. Martin Meldrum ...	0	10	6
Dr. T. Paterson	0	10	6
Dr. W. H. Parr	0	10	6
Bonnybridge Pharmacy Co.	0	10	6
Mr. James Adamson ...	0	10	0
Mr. Thos. Beattie	0	10	0
Mrs. R. W. Brown	0	10	0
Mr. John Eunson	0	10	0
Mr. W. Fraser	0	10	0
Mr. John Gilmour... ...	0	10	0
Mr. A. Hill Jeffrey... ...	0	10	0
Mr. John Muir	0	10	0
Mr. W. A. Russell	0	10	0
Mr. C. M. Smith	0	10	0
Mr. E. Steven...	0	10	0
Mr. Thos. Yule	0	10	0
Anonymous	0	5	0
Mr. P. McMaster	0	5	0
Mr. J. C. Semple	0	5	0
Mr. F. F. Stewart	0	5	0
Dr. A. Mercer Watson ...	0	5	0
Mr. A. S. Weir	0	5	0
Miss C. J. Smith	0	2	6
Mr. Wm. Smith	0	2	6
Mr. J. P. Young	0	2	6

THE IRISH FUND.

The fourth list of subscribers has been announced as follows:—

	£	s.	d.
Mr. R. A. Austin	1	1	0
Mr. Thomas Batt	1	1	0
Dr. J. C. Boyd	1	1	0
Dr. D. Boylan	1	1	0
British Empire Shakespeare Society, Belfast Branch	17	6	0
Mr. J. Burnett	1	1	0
Captain J. P. Carmody, R.A.M.C.	1	1	0
Mr. Wm. Carr	0	10	0
Dr. F. Costello (Sierra Leone)	2	2	0
C. E. C.	1	0	0
Prof. James Craig	5	5	0
Mr. J. R. Dickson	1	1	0
Dr. D. P. Gaussen	1	1	0
Dr. M. J. Gibson	5	5	0
Mr. R. Gray	1	1	0
Dr. W. G. Harvey	3	3	0
Dr. R. A. Hayes	2	2	0
Dr. R. Hill	1	1	0
Mr. Samuel Hogg	0	7	6
Louisa Holton, Ph.C. ...	0	5	0
Sir Andrew Horne ...	5	5	0
Mr. Allan Ingram	0	3	0
Irish Medical Schools and Graduates Assoc.	10	0	0

	£	s.	d.
Mr. W. P. Kennedy ...	0	10	0
Dr. W. H. Lowe	1	1	0
Dr. T. J. MacDonogh ...	1	1	0
Dr. H. McDowell	0	10	0
Dr. K. Maguire	5	5	0
Mr. A. Mawhinney ...	0	2	6
Medical Supply Assoc....	1	1	0
Mr. J. M. O'Sullivan ...	0	5	0
Dr. A. R. Parsons	5	5	0
Mr. J. S. Sheill	2	2	0
Mr. H. G. Sherlock ...	2	2	0
Mr. B. F. Smallman ...	1	0	0
Mr. J. Smith	1	1	0
Prof. Walter G. Smith ...	5	5	0
Mr. H. C. Smyth	1	0	0
Dr. J. B Story	5	5	0
Dr. E. H. Taylor	5	5	0
Dr. William Taylor ...	10	10	0
Prof. W. S Thayer (Baltimore, U.S.A.) ...	5	0	0
Dr. E. H. Tweedy	10	10	0
Mr. Thos. Unsworth ...	1	1	0
Dr. Ella G. A. Webb ...	1	1	0
Mr. W. F. Wells	1	1	0
Mr. W. I. de C. Wheeler	10	10	0
Mr. L. A. Whelan	1	1	0
Prof. Sydney Young, F.R.S.	1	1	0

MANCHESTER AND DISTRICT.

Dr. E. M. Brockbank announces that the total amount received by this branch fund up to March 7th was £442 12*s.*, of which £58 2*s.* were contributed by pharmacists and £34 10*s.* by the general public. The following subscriptions are additional to those published:—

	£	s.	d.
Mr. J. Howson Ray ...	21	0	0
Dr. John Wharton... ...	5	5	0
Mr. Garnett Wright ...	5	5	0
Dr. Cullen...	3	3	0
Dr. H. H. McNab	3	3	0
The Misses Hindle... ...	2	2	0

	£	s.	d.
Dr. F. W. Hartley... ...	2	2	0
Dr. W. S. Moore	1	1	0
Dr. H. B. Woodcock ...	1	1	0
Dr. Everard Claye... ...	1	1	0
Dr. Thos. Parke	1	1	0
Dr. W. C. Rigby	1	1	0

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

	£	s.	d.
West Croydon and District Medico-Ethical Society (per Dr. F. G. Grapel, Hon. Sec.) ...	1	1	0
Major Boylan Smith, R.A.M.C.	2	0	0
Dr. C. Harold Dyer ...	1	1	0
Dr. John Campbell ...	2	2	0
Dr. Ruth H. Western ...	5	0	0
Dr. J. Teare	2	0	0
Dr. E. B. Morely	1	1	0
Mr. R. Burges...	1	0	0
Horsham Division, B.M.A.—			
Dr. Boxall	1	1	0

	£	s.	d.
Messrs. Vernon and Kinneir	3	3	0
Chichester and Worthing Division, B.M.A. (per Dr. A. L. M. Palmer, Hon. Sec.)—			
Dr. W. J. Patterson ...	3	3	0
Dr. F. L. Alexander ...	1	1	0
Northamptonshire Division, B.M.A. (per Dr. Peverell Hichens)—			
Dr Stone	0	10	6
Dr. Richard H. Sankey	1	1	0
Anon.	1	1	0
Dr. H. F. Hann	2	2	0

	£	s.	d.
Mr. Joseph Baker	2	2	0
Dr. T. J. Fletcher	2	2	0
Mr. J. P. Ellerington (La Pharmacie Française), fifth donation	5	0	0
North Middlesex Division, B.M.A. (per Dr. Stewart Smith, Hon. Sec.)—			
Dr. T. D. Forbes... ...	0	10	0
Dr. F. W. Fawssett ...	0	10	0
South Staff. Division, B.M.A. (per Dr. H. C. Mactier, Hon. Sec.)—			
Dr. J. J. O'Brien ...	1	1	0
Mrs. Thursfield	1	1	0
Danish Union of Doctors (per Dr. Christopherssen)	178	8	3
Miss C. O'Neild	1	0	0
Dr. W. E. Risdon	3	3	0
Dr. G. A. Wolfendale ...	1	1	0
Dr. Isles	2	0	0
South-West Wales Division, B.M.A. (per Dr. D. R. Price), second donation	2	0	0
Dr. James Robinson ...	2	2	0
Oldham Medical Society (per Dr. F. L. Pochin, Hon. Sec.)—			
Dr. A. Bowes	1	1	0
Dr. Douglas	1	1	0
Dr. W. H. Willcox... ...	3	3	0
North of England Branch of Belgian Doctors' and Pharmacists' Relief Fund (per Dr. James Don and Mr. A. S. Percival), second list—			
Dr. J. C. J. Fenwick...	3	3	0
Dr. J. Brownlee	1	1	0
Dr. G. H. Anderson ...	2	2	0
Mr. H. E. Armstrong	3	3	0
Dr. F. A. Bainbridge	1	1	0
Dr. J. R. Fothergill ...	2	2	0
Mr. A. A. Martin... ...	1	1	0
Dr. and Mrs. J. A. Menzies	2	2	0
Dr. A. C. Park	1	1	0
Dr. H. Widdas	2	0	0
Dr. J. C. J. Fenwick...	3	3	0
Dr. J. Brownlee... ...	1	1	0
Dr. W. A. Stephen ...	2	2	0
Dr. A. G. Glass	2	2	0
Dr. H. R. Kendal ...	1	1	0
Dr. T. S. P. Parkinson	2	2	0
Dr. S. J. B. Fox... ...	2	2	0
Dr. J. J. Campbell ...	2	2	0
Dr. T. M. Martin ...	1	1	0
Prof. Morison	10	0	0
Mr. G. G. Turner ...	5	5	0
Dr. A. G. W. Stephen	0	10	6
Dr. J. Hedley	3	3	0
Dr. A. B. Hobbs... ...	2	2	0
Dr. H. Kerr	2	2	0
Dr. H. Adams	2	2	0
Dr. B. C. Broomhall ...	1	0	0
Birmingham Local Committee (per Dr. Robert Saundby, Hon. Sec.), tenth donation—			
Dr. and Mrs. St. Clair Ballenden (proceeds of G.F.S. Concert)...	18	7	3
Dr. Ballenden	5	0	0
Dr. Julius H. Bellby	2	2	0
Dr. Wm. Welsh (proceeds of Whist Party, additional)	0	10	0
Miss I. Blyth	0	10	0
Mr. S. Fowle	2	2	0
Mr. H. Jenkins	0	10	6
Halifax Chemists' Association (per Mr. R. V. Sutcliffe)	2	2	0
Mr. T. Jackson	1	1	0
Messrs. G. E. Bridge and Co., Limited	1	1	0
Mr. R. J. Perkin, second donation	0	10	0
Mr. M. E. Morris	0	10	0
Canadian Committee for the Relief of the Belgian Medical and Pharmaceutical Professions (per Dr. J. Gibb Wishart, Hon. Treas.), third donation	200	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £7500 had passed into the treasurer's hands by Tuesday last, the sum not including the Scottish and Irish and several large local funds.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Dr. F. Miller Wilson, Liverpool; Dr. F. Fowler, Bournemouth; Dr. C. D. Parfitt, Ontario, Canada; Dr. Priestley Leech, Halifax, Yorks; and Mrs. H. Barton, Market Rason.

A CENTENARIAN.—Mr. John Shintall, of Portarlington, Queen's County, who saw the famous fight between Donnelly and Cooper at the Curragh of Kildare in 1818, has died at the age of 110 years.

SANATORIUM BENEFIT IN IRELAND.—It has long been evident that the funds at the disposal of the Insurance Committees in Ireland are insufficient to meet the demands of the claimants for sanatorium benefit. In some cases the deficiency has been made up by the local authority, but in others, as in the Dublin county borough, the Insurance Committees and the local authorities have failed to come to an agreement. Last year Mr. Lloyd George promised to find further funds to enable insurance committees to meet their full responsibilities, but so far without result. The Dublin Insurance Committee has had temporarily to refuse all applications for the benefit, and it has been decided to treat in future only cases that present a prospect of recovery or improvement, and to discharge from treatment cases not progressing satisfactorily. Clearly, unless some remedy for the difficulty is found the sanatorium benefit must fail.

The War.

THE NEED OF THE ARMY FOR MEDICAL OFFICERS.

THE following letter has been received from the Director-General of the Army Medical Service:—

War Office, Whitehall, S.W.

SIR,—I should be glad if you would allow me to explain through your columns our position with regard to the employment of medical men for the army. It is briefly as follows:—

1. The need of medical men, both for home and foreign service, is acute. We want every qualified man who is physically fit and willing to serve.

2. We are in special need of general practitioners, but would be glad to take on expert surgeons, ophthalmologists, radiographers, &c.

3. We could give suitable men immediate employment.

4. At present we are not, except in special cases, sending men over 40 years of age overseas, but we should gladly take on older men for home service.

5. We do not wish to denude the country of civil practitioners, but every man who can arrange for his work to be done at home should come forward as early as possible if we are to keep up an adequate supply of medical attendance to our armies in the field. This is really a national emergency, and we hope that the medical profession, who have already done so much, will assist the responsible authorities to meet it.

Should any qualified man wish to obtain a temporary commission in the Royal Army Medical Corps he should apply to the Secretary, War Office, Whitehall, S.W., for the necessary forms.

Yours faithfully,

ALFRED KEOGH,
Director-General, Army Medical Service.

March 10th, 1915.

THE HONOURS LIST.

Lieutenant Eric Christian Lang, Royal Army Medical Corps, attached to the 1st Battalion the Leicestershire Regiment, has been appointed D.S.O. for conspicuous gallantry and devotion to duty on two occasions, especially on Feb. 9th, 1915, at Rue Du Bois, when he rescued a severely wounded officer under very difficult circumstances whilst in full view of the enemy.

THE CASUALTY LIST.

The casualties among officers in the Expeditionary Force reported since our last issue include the names of Lieutenant P. M. J. Power, R.A.M.C., and Major F. G. Richards, R.A.M.C., killed; and Captain J. H. Bell, R.A.M.C., Lieutenant T. W. Clarke, R.A.M.C., and Lieutenant C. M. Row, R.A.M.C., wounded.

ANTITYPHOID INOCULATION.

The War Office has published a table showing the distribution of typhoid fever cases among British soldiers in the field among the uninoculated, the fully inoculated, and the partially protected. Among the uninoculated there were 359 cases with 48 deaths (death-rate 13·37 per cent.); among those fully inoculated within two years (two doses), 111 cases with 1 death (death-rate 0·9 per cent.); and among the partially protected (one dose), 136 cases with 1 death (death-rate 0·73 per cent.).

BRITISH RED CROSS SOCIETY.—The summary of the work done during the week ending March 6th shows the number of auxiliary home hospitals accepted by the War Office to date to be 807, containing beds for 22,324, including 344 beds accepted during the past week. At the Netley Red Cross Hospital a total of 452 patients are under treatment. The Good Hope Red Cross Society has up to date met all reasonable demands made upon it by the Director of Medical Services, the principal medical officers of base and stationary hospitals, and the officers commanding field hospitals, &c. On more than one occasion it has been able to meet emergency calls, notably that of the Touws river railway accident, when it despatched a doctor, nurses, and orderlies within an hour from the receipt of the call for assistance. It has also supplied quantities of bed linen and medical comforts to various hospitals to meet sudden demands.

Three motor ambulances have been supplied, for use principally at the base, and there have further been despatched during the week: To Boulogne, 3 ambulances, 2 touring cars, 1 lorry, 2 soup kitchens, and 1 motor cycle; to Dunkirk, 1 ambulance and 1 repair wagon; to Havre, 1 ambulance and 1 cabriolet; to Wimereux, 1 touring car; and to places in England, 2 ambulances.

864 cases of stores were despatched abroad. Of these, 303 were sent to Boulogne and 520 to Calais. The balance represents small amounts sent to other places in France.

117 hospitals in this country were supplied in all with 222 cases of requisites and comforts. The total expenditure upon stores during the week was £1897.

RUSSIA'S SURGICAL INSTRUMENTS PROBLEM.—A Russian correspondent writes: "The problem of the supply of surgical instruments, since importation has become so difficult owing to the war, is being partly solved by the Russian cottage or home industrialists, particularly in the village of Pavloff, in the Nizhegorod government. It appears that the peasant workers there have delivered various surgical instruments of such quality as to convince local traders that not only German, but foreign goods generally of the kind, can now be dispensed with. One large Moscow house that specialises in these goods is establishing a workshop of its own at Pavloff, and is opening there a bureau for giving cash advances to peasants who have devoted special attention to the making of surgical instruments. Instruments received from Sweden are of high quality, but expensive. In a note from Moscow V. N. Rozanoff, the senior surgeon of the Soldatenkoff Hospital, states that he has received from Japan a parcel of surgical instruments of excellent quality. He is expecting similar consignments from England *viâ* Copenhagen."

A RUSSIAN SURGEON'S WORK AT THE FRONT.—Another Russian correspondent sends us the following translation from the *Novoe Vremya* of Feb. 11th of a letter written by a Russian professor of surgery to his wife, giving details of his work at the front and showing the wonderful fortitude on the part of wounded Russian soldiers and the whole-hearted devotion to duty of the Russian army doctors. "To-day," he says, "I had to operate on an ensign-bearer who was wounded in the brain and who suffered from paralysis in his left arm. Scarcely had I finished that operation when another, of which I shall give you some details, claimed my attention. This is the case of Paul Ivanovitch Semenov, wounded in the jaw and tongue by a German machine-gun. I shall give you a short history of his wound, so that you may, without mentioning my name, tell in the press the following facts of wonderful bravery, endurance, patience, and self-control on the part of a Russian soldier. During my 15 years of medical experience I have witnessed a great deal of patience and endurance, but never, by a long way, to the extent shown in this case. When in the course of an attack Semenov was wounded in the jaw and the root of his tongue by a German machine-gun, his mouth was filled with blood, which nearly choked him. While the battle was still in progress he returned towards his trench, where, seeing a soldier, he asked him for help, as he was very weak from loss of blood. This soldier, a German, turned upon Semenov, caught him by the throat with one hand and was about to bayonet him with the other. But Semenov, though bleeding profusely and choking with the effusion from his mouth, was not disconcerted; he grappled with the enemy and with the aid of other Russian soldiers who hurried to his rescue made an end of the German.

During the four days which it took him to reach the hospital Semenov suffered from repeated effusions of blood from the mouth. In the morning of the same day that he arrived I extracted, without an anæsthetic, the bullet. Semenov did not utter a sound. Thinking that after the extraction of the bullet the bleeding would stop, I did nothing more than prescribe a mouth-wash. But I ordered the doctor on duty to call me immediately should the bleeding start again. The whole of the day following the operation, which relieved Semenov from excruciating pain, was passed very comfortably. Semenov brightened up, regained his appetite, began talking, and told me how he was wounded. At midnight the doctor in charge summoned me by telephone and told me that Semenov was again bleeding severely. On arriving at the hospital I found the unfortunate man spitting blood in the spittoon, which was nearly full of it. I took him immediately into the operating-room. It was very difficult to insert a suture, the injury being at the root of the tongue. Moreover, as the patient was wounded in the chin and could not therefore open his mouth wide enough manipulation inside the mouth with needle and silk was almost impossible. I therefore determined to stop the bleeding with a red hot iron. It was impossible to administer chloroform; he would have been choked with blood. The other doctor drew out with forceps Semenov's tongue and under great difficulties I began to cauterise that highly sensitive part with a red-hot iron. Not a single groan, not the slightest sound did he utter. I was in tears. But imagine my horror when I found that the red-hot iron did not stop the bleeding, but, on the contrary, increased it. The suture remained the only hope. I do not know whether it was my skill or God's mercy upon the suffering Semenov that brought the operation to a successful end. With intermissions, during which Semenov bled profusely, the medical officer on duty, Kovalsky de Schmiden, a recent graduate, now let go Semenov's tongue, now drew it out again, so that at last I inserted the suture in the mouth and the bleeding stopped. All the time Semenov did not make a moan. When I had finished he only said, 'Well, it has stopped now.' I then noticed that my young colleague was as white as a sheet and was hardly able to keep on his legs. Another moment and he would have fallen. I led him to the window, held him up, and helped him to recover. I do not wonder that these great efforts to save a life had affected him so much.

For the first time in my life I became convinced that I had iron nerves and that I was born to be a surgeon. Semenov astounded me. I bowed to his power of endurance. I respected his trust in me, his firm belief that I would surely save his life. This confidence of Semenov, which did not waver before the red hot iron or the suturing up of his tongue, afforded me much happiness of the rarest kind. The following day Semenov walked about, smoked, conversed, and thanked me, while on his tongue lay the suture of silken thread. To-morrow I shall remove that suture. Semenov so greatly impressed and touched my soul to its very depth that I could not rest till I had gone up to him and said: 'Semenov, you have shown yourself such a hero, not only on the battlefield but here in hospital, that I shall inform your commanding officer of your heroic conduct. Tell me his name.' He was highly delighted and thanked me. That very day I wrote officially to the commander and concluded my letter as follows: 'I consider it my duty to report these circumstances to you, and hope that your regiment will be proud of their hero, and that you, colonel, will reward him.'

After Semenov I had to operate on a young wounded volunteer. The bullet had penetrated into the third rib on his left side and wounded the lung. As a result a subcutaneous emphysema had spread over the left side of the whole body. From the wound issued noisily an unceasing stream of blood mixed with a foul-smelling matter. The situation was difficult and terrible. The bandages were drenched in blood; they had been changed four times in a few hours. I cut open the second intercostal space of the left side. Before my eyes I could see beating

the noble Russian heart of a volunteer—a young locksmith. All we doctors saw for the first time through the pericardium how a heart beats. I tamponed the putrefying left lung. The patient was turned and I opened the ninth intercostal space of his left side. Here we discovered that the bullet had passed through the diaphragm, and from there plunged somewhere into the abdomen, grazing on the way a part of the spleen. The wound was tamponed. Two days have passed and he is still alive. We yet hope that he will be victorious in his struggle with death. His name is Glef Afanseyevitch Korzhikov, aged 20. My main ambition at the present moment is to save his life. I dress his wounds twice a day.

The whole of my staff are worn out and very tired. Do not be disappointed if I do not come home to rest for some time, though it is the custom for senior medical officers to do so. There is no cause for uneasiness; I am strong, well, and able to bear it all. I work from six in the morning till far into the night. Since the war started there have passed through my hands 1000 wounded."

IN THE BRIGHTON HOSPITALS.—A local correspondent sends us the following notes of some cases that have been admitted to the various hospitals in Brighton:—

Varicose aneurysm.—A patient was shot through the popliteal space by a rifle bullet. Entry and exit wounds were small and healed quickly. In the popliteal space was a pulsating, expansile swelling in the course of the artery, over which were a thrill and a loud roaring murmur. On compressing the popliteal artery above the swelling pulsation ceased. This condition is said to be not uncommon as the result of simultaneous injury of a neighbouring artery and vein by small-bore bullets, but no previous case has been seen in the Brighton hospitals. The artery is only partly divided during the passage of the bullet. In the popliteal space, where artery and vein are in close connexion and firmly bound together, the usual form of arterio-venous communication is an aneurysmal varix. As to treatment, ligature of the proximal artery is in very many cases followed by gangrene. The best procedure seems to be to wait, giving the leg complete rest, in hope that the swelling will subside. If this fails, as it usually does, ligature of the artery above and below the sac without opening it is the ideal operation.

Wound of the spinal cord.—Patient was shot through the back, the bullet entering the spine on one side at the lumbo-dorsal junction and leaving on the same level on the other. Complete loss of sensation and motion in the legs followed, also paralysis of rectum and bladder, with incontinence of urine and fæces. Admitted three months after receipt of wound, much emaciated, especially in the legs, with intermittent pyrexia, cystitis, and a large sacral bedsore. In a French hospital he had had suprapubic cystotomy performed, and the urine constantly dribbled through this wound making him sore and uncomfortable. It is difficult to understand on what grounds this operation should have been carried out. He has improved very much in his general condition, as the result of good nursing, feeding, and rest. Cystitis has been much lessened by washing out the bladder twice daily. Bladder has been kept empty by tying in a catheter in order to allow the suprapubic wound to close, when the catheter will be taken out. Laminectomy has been considered, but as none of the indications laid down by the authorities—i.e., great pain above the paralysed region, or an incomplete or recovering lesion with good evidence of pressure or irritation by displaced bone or the retention of a bullet causing pressure or irritation—are present, the operation would serve no good purpose.

Fracture of the lower jaw on both sides.—A bullet passed through the lower jaw on the right side, cut away front half of tongue, and made its exit through the opposite side of the lower jaw. It is not usual for the tongue to be injured by a bullet, unless accompanied by a more serious lesion. Fractures of the lower and upper jaw have been common, and usually do wonderfully well under quite simple treatment.

Cases of bleeding from the arm some time after the infliction of the injury.—A man whose arm had been pierced by a bullet seemed to be doing well, when a sudden, unexpected and copious issue of blood from the wound occurred and the patient died almost at once, before anything could be done. In another case in which the main artery, the brachial, was not the vessel at fault hæmorrhage occurred, and was treated by ligature at the bleeding point, but the bleeding recurred and it was therefore necessary to amputate the arm.

Frost-bite.—Among the many cases of this malady admitted the same cause operated in all—namely, standing in wet, sodden, cold, and slushy trenches for many days on end with no opportunity of drying or changing boots and socks. In all instances it was the feet that were affected, and all degrees of frost-bite were encountered, from the most serious (gangrene of the toes and even of the front part of the tarsus) to the least serious (those cases which resembled rather a chilblain of the whole foot). In the latter cases little beyond resting the feet and keeping them warm and massaged was required. They soon got well. But in the worst cases a line of demarcation must be awaited, and then as little as possible of the foot removed. It is surprising how marvellously parts which at first sight seem to be passing into gangrene recover if the surgeon will exercise patience. It is therefore well to be in no hurry to operate.

Wounds of the lung.—In the first case the bullet entered the root of the neck just over the sterno-clavicular joint, passed out at the angle of the scapula of the same side, traversing the lung in its passage. The only evidence of wound of this organ was transient hæmoptysis. This patient has a rather curious symptom, which is by no means uncommon after bullet wound of the lung, and that is dyspnœa on even slight exertion. It is said to be due either to contraction of the scar of the track of the bullet or to adhesions in the pleura. It is a troublesome symptom, often disabling the patient for a long time. In another case the bullet went in at the angle of the twelfth rib and passed out above and external to the nipple. It went through both liver and lung. The patient had all the signs of fluid in the chest, and a needle inserted showed a little fluid. This is now absorbing and the patient doing quite well.

Shrapnel wound of the eyeball; excision.—In this man a small fragment of metal had pierced the upper lid, passed through the sclerotic, and remained embedded at the junction of the iris and ciliary body, tearing the former from its attachment. The piece of shrapnel could be seen lying just behind the aperture in the torn iris. The eye being quite blinded, the eyeball was removed to avert the risk of sympathetic ophthalmia. A suture was passed through each muscle before it was cut. These sutures were tied together, and the conjunctiva was sewn up over the stump thus formed to give greater mobility to the artificial eye to be worn later.

Supposed foot-and-mouth disease.—This patient was admitted from "a town in France" with the following history. He had been in charge of horses at a farm in which there were no other animals at all. Taken ill three weeks ago; had a bad cold, and blisters appeared first on his hands, then in his mouth, then on his feet. This was diagnosed in France as foot-and-mouth disease. On admission he was feeling quite well; had no rise of temperature; the mouth was normal; his hands and feet were covered on the palmar and plantar aspects with very numerous blisters, varying in size from that of a pin's-head to that of a threepenny-piece, and yellow in colour. The diagnosis rested between foot-and-mouth disease and cheiropompholyx. On the whole, the majority of those who saw the case inclined to the latter view.

VACANCIES FOR MEDICAL OFFICERS.—The War Office announces that more army medical officers are required. Medical men over 40 years of age will be accepted for service at home, and temporary commissions in the Royal Army Medical Corps will be granted without delay. Applications in writing should be addressed to the Secretary, War Office.—We are informed that medical men with sanitary qualifications and experience are wanted to complete the establishment of officers of the 1st London (City of London) Sanitary Company, R.A.M.C. (T.). The present necessity has been caused by the despatch of drafts overseas, and gentlemen now joining the company may expect to be sent on active service at an early date. Particulars as to pay, allowances, &c., can be obtained from the Officer Commanding at Room B 6, Duke of York's Headquarters, Chelsea, S.W., either by letter or by calling between the hours of 10.30 A.M. and 12.30 P.M. any day.—There are vacancies for three Royal Army Medical Corps

officers in the 2/3rd North Midland Field Ambulance at Luton, Bedfordshire, which is now being rapidly trained for the front, and one of these officers should have a knowledge of, and be used to, horses to undertake the control of transport. There is also a vacancy for an officer holding the D.P.H. qualification to take charge of a sanitary section. Lieutenant-Colonel Lewis W. Pockett, R.A.M.C. (T.), the officer commanding, will be pleased to give applicants full particulars or to interview them personally in London or at Luton.—Medical officers are still urgently required for the 2/1st Highland Mounted Brigade Field Ambulance, R.A.M.C. Full particulars of the duties, pay, &c., will be given to anyone applying to Captain Mowat (officer commanding), Drill Hall, Rose-street, Inverness.

THE WOUNDED AT THE LONDON HOSPITAL.—At a court of governors of the London Hospital held at that institution on March 3rd, Viscount Knutsford, who presided, stated that 2000 British and Belgian soldiers had been treated during the period of the war. Patients who were not badly wounded, after being treated in the hospital, were conveyed in motor-cars to adjacent hospitals, and the treatment given to the civilian population had not been reduced. In referring to the London Hospital Contingent, which was formed with the object of offering its services to the War Office, Viscount Knutsford said that it had been decided not to send the contingent to the front as no young people were available, and the committee desired to conserve all their energies in order to carry out their responsibilities to the Admiralty and the War Office. Reference was also made to the picture which was being painted by Mr. John Lavery, A.R.A., showing the wounded in the wards of the London Hospital.

LIVERPOOL FIELD HOSPITAL.—Four specimen blocks of the Liverpool Field Hospital, which is shortly to go to the front, were on exhibition in Liverpool recently, the exhibition being formally opened by the Lord Mayor. The complete hospital will consist of 24 such blocks and will provide accommodation for 230 patients besides the staff and administration. Upwards of £26,000 have been spent on its equipment and maintenance, and monthly subscriptions amounting to a total of £864 have been promised for its support for periods varying from six months to the entire duration of the war. It was decided to follow out the Territorial idea, so that the staff will consist, besides commandant and quartermaster to be appointed by the War Office, of Lieutenant-Colonel Nathan Raw, R.A.M.C. (T.), Major T. C. Litler Jones, R.A.M.C. (T.), X ray specialists, and 7 other medical officers, with a paymaster, dispenser, matron and assistant matron, 41 sisters, nurses, and wardmaids, and 41 orderlies, all of whom will be from Liverpool.

A DISTINCTIVE SIGN FOR CIVIL HOSPITALS.—By the Hague Convention of 1907 it was decided that in case of bombardment civil hospitals and other public buildings should be spared as much as possible and that they should bear a distinctive sign to be made known to the enemy. The Home Secretary, in reply to a question by the town clerk of Leeds, pointed out that the proper sign for such buildings is to display conspicuously a stiff rectangular panel divided diagonally into two triangular portions, the upper painted black and the lower white. The Red Cross is reserved exclusively for hospitals under naval or military control, or where special authority has been granted by the Army Council.

ARMY CLOTHING AND INFECTIOUS DISEASE.—The Home Office has called the special attention of local authorities to the fact that they possess full powers under the Factory Act to prevent outwork being done in any house where there is infectious disease. In view of the great quantity of home work that has necessarily to be done in connexion with the manufacture of army clothing, local authorities are called on strictly to enforce the provisions of the Act.

SURGICAL APPLIANCES FOR SOLDIERS.—The War Office has notified that disabled soldiers duly certified as needing artificial limbs or surgical appliances can receive them at the public expense by making application in writing to the Commissioners of the Royal Hospital, Chelsea, London, S.W.

DENTAL SURGEONS FOR THE ROYAL NAVAL VOLUNTEER RESERVE.—The Lords Commissioners of the Admiralty have sanctioned the addition to the establishment of the Royal Naval Volunteer Reserve of two temporary officers entitled dental surgeons. They will hold relative rank with surgeons of the Royal Naval Volunteer Reserve, and the pay will be £1 a day with compensations, pensions, and allowances on the same scale and under the same conditions as for surgeons of the Royal Naval Volunteer Reserve.

A MOTOR AMBULANCE FOR THE FRENCH RED CROSS.—A motor ambulance has been presented to the French Red Cross by the members of the Athenæum Club, who have already given one to the British Red Cross.

A POPULAR lecture, under the joint auspices of the Chadwick Trust and the League of Mercy, on the War and the Wounded, 1870–71, 1914–15 (illustrated by lantern slides), will be given by Mr. Adolphe Smith, Sanitary Commissioner to THE LANCET, who served in the French Ambulances during the Siege of Paris, in the lecture hall, Royal Society of Arts, John-street, Adelphi, W.C., to-day, Friday, March 12th, at 5.15 P.M. The chair will be taken by Sir William J. Collins, K.C.V.O., M.D. Admission free.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At a meeting of the Court of Assistants held at Apothecaries' Hall, Blackfriars, London, E.C., on March 9th, the honorary freedom of the society was conferred upon Sir Ronald Ross, K.C.B., F.R.S., in recognition of the very valuable services rendered by him to medical science, especially in connexion with the prevention of tropical disease. At the same meeting grants were made to various charitable funds in connexion with the war.

QUEEN'S HOSPITAL, BIRMINGHAM.—The seventy-fourth annual report of the Queen's Hospital, Birmingham, which was submitted to the board of governors at the hospital on March 10th, shows that during the year 1914 the number of in-patients treated was 2966 and the number of out-patients 28,430. The income was £11,827 and the expenditure £18,387, leaving a deficit of £6560. As in the case of other hospitals, the staff has been depleted owing to the war, but much excellent work has been done in administering to the needs of English and Belgian wounded soldiers.

THE National Health Insurance Commission (England) have issued a circular (AS. 161) dealing with the certificates of medical men attending panel patients in a private capacity, and giving the official reason why the forms Med. 40 have not been supplied to practitioners for use in these cases.

THE Editor of the *Journal of the Canadian Medical Association*, Dr. Andrew Macphail, announcing a change of address, asks that in future books, periodicals, and communications intended for the journal should be addressed to him at 836, University-street, Montreal.

Mr. R. Thomas Jones, L.R.F.P.S. Glasg., L.S.A. Lond., of Harlech, has been appointed High Sheriff for the county of Merioneth for 1915–16.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Naval Medical Compassionate Fund Bill.

THE Naval Medical Compassionate Fund Bill has been read a third time in the House of Lords. It has also passed through all its stages in the House of Commons, and it is therefore ready to receive the Royal Assent. In the House of Lords there was some disposition to inquire whether the fund with which the Bill deals was not being diverted from the purpose for which it had been originally subscribed. The representative of the Government, however, stated that the distribution of the fund would be settled by an order to be laid on the table of the House. The Bill was then permitted to pass through its remaining stages.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 3RD.

Pay of Territorial Medical Officers.

Mr. JOYNSON-HICKS asked the Financial Secretary to the War Office what were the rates of pay for captains in the Territorial Royal Army Medical Corps who went to the front as compared with pay given to civilian doctors for the same work.—Mr. H. BAKER wrote in reply: The present emoluments compare as under:—Emoluments of captains of the Royal Army Medical Corps, Territorial Force, when serving at the front: Pay (per day), 15*s.* 6*d.*; field allowance, 3*s.* 6*d.*; lodging, 3*s.*; fuel and light, 1*s.* 3*d.*—total 23*s.* 3*d.* Emoluments of civil surgeons commissioned as temporary lieutenants, Royal Army Medical Corps, under the same conditions: Pay (per day), 24*s.*

Sickness Benefit in Ireland.

Mr. GINNELL asked the Chancellor of the Duchy, as representing the National Insurance Commissioners, a series of questions in regard to the administration of sickness benefit in Ireland.—Mr. MONTAGU replied that he would be glad to make inquiry into any case that was brought to his notice where undue delay or difficulty had been experienced in obtaining a certificate to support a claim for sickness benefit. As regards these claims, the medical men who were giving certificates under the National Insurance Acts had arranged convenient places in their districts at which insured persons might attend for examination, and in any case where an insured person was prevented by distance or by his physical condition from leaving his own home he must be visited by the doctor in his own home. It was the duty of Approved Societies to scrutinise all claims for sickness benefit, and where the necessary conditions were fulfilled to their satisfaction benefit was payable from the fourth day of incapacity for work. As regards the basis on which grants had been made to facilitate the provision of medical certificates in Ireland, the Chancellor of the Exchequer stated on August 14th, 1913, that he was satisfied that a grant of £50,000 was insufficient to cover the cost of satisfactory arrangements for this purpose, and undertook to ask Parliament to increase the grant up to a maximum limit of 2*s.* 6*d.* per insured person per annum. This latter sum was equivalent to a sum of £97,100 per annum, and the estimates provided that payments out of the account under this head should be subject to conditions determined by a scheme made by the Irish Commissioners, with the approval of the Treasury. Pending the approval of such a scheme expenditure might be incurred for the purpose of certification in Ireland to an annual amount not exceeding £50,000 voted for this purpose. The present annual expenditure was about £44,000, the remuneration paid being inclusive of travelling expenses.

Mr. GINNELL asked the right honourable gentleman what independent medical approval, if any, the Irish Insurance Commissioners had for allowing insured poor persons seriously ill to be improperly disturbed by a certifier who, not being the medical attendant, was unacquainted with the cases, and for the Commissioners' more recent attempt to have laymen appointed to visit cases which they had no qualification for judging and from some of which they might convey infection; and whether, before allowing those two practices to proceed further, he would have them considered by the highest medical and surgical authorities in Ireland.—Mr. MONTAGU wrote in reply: I am informed that doctors who visit insured persons desirous of obtaining medical certificates are instructed to exercise every care in visiting persons who are seriously ill and are not permitted to interfere with the treatment prescribed by the doctor in attendance. If I correctly understand the second part of the question to refer to the appointment of sick visitors by Approved Societies, I may say that a system under which such visitors are appointed is of much value to Approved Societies in exercising a proper supervision over claims for sickness benefit. As regards the third part of the question, the Irish Insurance Commissioners are, as I myself am, of course, happy at any time to receive suggestions for the improvement of the existing system of certification. The right honourable gentleman added, in reply to another question, that any work in connexion with certification was only undertaken by Poor-law medical officers on the distinct understanding that it would not interfere with the proper performance of their other duties.

THURSDAY, MARCH 4TH.

Antityphoid Inoculation.

Mr. TENNANT, Under Secretary for War, informed Mr. CHANCELLOR that there had not been any change in the instructions with reference to antityphoid inoculation in the army.

The Sanitary Condition of Soldiers' Billets.

Mr. HOGGE asked the President of the Local Government Board whether he called for reports from local sanitary authorities as to the conditions of soldiers' billets; and whether he would make any special inspection of those districts where large numbers of men were billeted.—Mr. HERBERT SAMUEL replied: Last autumn the Local Government Board, after consultation with the War Office, issued circular letters to local authorities indicating the action which should be taken by the authorities and their officers to give assistance in connexion with the sanitary condition of military quarters and other matters affecting the health of troops, including the systematic inspection of billets. I have received a number of reports from medical officers of health on camps and billets in their districts. Since the outbreak of the war my medical inspectors have visited camps and billets in all parts of the country and have made inquiries with respect to their sanitary condition and the action of local authorities and their officers in the matter. Up to the end of January about 550 such visits had been made. In addition to local representations by the inspectors action has been taken on their reports by the Board in cases where this was necessary by means of communications with the War Office and the local authorities.

Mr. HOGGE: Has my right honourable friend any report of the cases in which soldiers themselves have got rid of mattresses by burning them on account of their insanitary condition?—Mr. HERBERT SAMUEL: I have not had brought to my notice any such report, but if the honourable Member can give me any particular case I shall be glad to investigate it.

Mr. ALDEN: Has the right honourable gentleman received any complaints from the local authorities?—Mr. HERBERT SAMUEL: There have been representations which have been handed on to the War Office, but there has been no case of difficulty in providing a remedy in each case so far as I am aware.

Mr. JONATHAN SAMUEL: Is there any objection on the part of the military authorities to visits by the medical officers of health?—Mr. HERBERT SAMUEL: No. So far as I am aware the military authorities are most anxious to have the assistance both of the officers of the Local Government Board and the local officers of health to secure the best sanitation they can.

Sick and Wounded Soldiers in Hospitals.

Mr. HARRY LAWSON asked the Financial Secretary to the War Office what was the basis upon which contributions were made to the voluntary hospitals which, with the approval of the War Office, were admitting sick and wounded soldiers; whether such basis of contributions was uniform throughout the United Kingdom or whether a varying scale had been adopted; and, if so, upon what principle such variations were made.—Mr. H. BAKER answered: I am glad to say that the use of these voluntary hospitals has not been offered on a commercial basis, and the assistance given from public funds has taken the form of a grant-in-aid on the basis of a daily rate per occupied bed. The rate is normally 2*s.*, but in some cases a somewhat larger grant may be given by the general officer commanding.

Mr. LAWSON: Will a difference be made between general hospitals in the metropolitan area and other hospitals?—Mr. BAKER: I cannot answer that question without notice.

Promotion in the Royal Army Medical Corps.

Sir C. KINLOCH-COOKE asked the Under Secretary for War whether there had been any cases of junior officers of the Royal Army Medical Corps promoted for services during the war, and, if not, why this corps should have been exceptionally treated in this respect.—Mr. TENNANT said in reply: Four majors have been promoted to be brevet-lieutenant-colonels. Decorations have also been conferred on 13 majors, 12 captains, and 9 lieutenants.

MONDAY, MARCH 8TH.

Sight Tests in the Mercantile Marine.

Mr. LYNCH asked the President of the Board of Trade whether his attention had been lately drawn to the inefficiency of the sight tests used by the Board; whether these tests had been adversely commented on by a great number of authoritative members of the medical profession; whether he would take steps to secure the best type of lantern available; whether it was found that the wool test allowed over 50 per cent. of dangerously colour-blind candidates to pass and produced the rejection of over 50 per cent. of normal-sighted candidates; and whether he would abolish this test altogether.—Mr. RUNCIMAN said in reply: I have reason to believe that the sight tests employed by the Board of Trade are efficient for their purpose, and that the criticisms made on the lantern are unfounded. The lantern test was submitted about a year ago to a rigorous practical test at Shoeburyness in the presence of representatives of shipowners, shipmasters, and others who had raised objection to its use, and as a result these objections were formally withdrawn. The figures as to the operation of the wool test are not entirely accurate, but the wool test has now become quite a subordinate part of the examination and no candidate is finally passed or rejected on this test alone.

The question whether the wool test can be dispensed with as superfluous is receiving consideration, but in present circumstances I should prefer to have somewhat longer experience of the new system before finally deciding the matter.

Mr. LYNCH: Will the right honourable gentleman undertake to defend the wool test scientifically?—Mr. RUNCIMAN: I have already said that I should prefer to have some longer experience of the new system before expressing any opinion upon it.

School Drill and Medical Opinion.

Sir J. D. REES asked the President of the Board of Education whether medical opinion other than that of the medical branch of the Board of Education had been sought in order to confirm the opinion of such medical branch to the effect that for children up to 14 or 15 it was most desirable that military drill should not be introduced into elementary schools.—Mr. J. A. PEASE replied: The answer is in the negative, as no occasion has arisen for such a consultation. In 1902 the Board issued a "Model Syllabus of Physical Exercises" which was largely based on military drill. In 1904 an Inter-departmental Committee, which included two medical men, unanimously reported that they did not consider the model syllabus suitable for use in schools, and recommended the adoption of a scheme based upon well-defined physiological and educational principles. When considering the revision of the syllabus in 1909 the Board had the advantage of informal consultation with a number of medical authorities.

Mr. WHITEHOUSE: Will the right honourable gentleman say whether the statement in this question as to the opinion of the medical branch of the Board of Education is correctly given?—Mr. PEASE: I cannot say as to the precise words without reference to the medical report, but I know that the opinion of my medical adviser is that the physical system at present in use in the elementary schools in this country is much the best kind of exercise and drill which those children can undergo.

TUESDAY, MARCH 9TH.

Private Houses as Military Hospitals.

Sir WILLIAM BULL asked the President of the Local Government Board whether he could see his way to arrange that private houses which were lent for the purpose of naval or military hospitals were free of rates while so used.—Mr. HERBERT LEWIS (on behalf of Mr. HERBERT SAMUEL) replied: The Local Government Board have no power to take any action of the kind suggested in the question. They have, however, stated in answer to inquiries that if a local authority in such a case should see fit to exempt such premises from rating the Board themselves would not, in the present circumstances, wish to take exception to such a course.

The Health Conditions of Osborne.

Lord CHARLES BERESFORD asked the Secretary to the Admiralty whether, with regard to the unhealthy condition of Osborne College, in which there were now 136 cases of illness, and having regard to the constant state of ill-health among the cadets and the fact that the college was built over old stable drains and soil sodden with tetanus germs and the prevalency of the complaint called pink eye, the Admiralty would appoint a commission of medical men to inquire into and report on the case.—Mr. MACNAMARA replied: There has been no case of tetanus at Osborne and no epidemic, but only isolated cases of the form of conjunctivitis alluded to by the noble lord as "pink eye" during the last two years. I may say that investigations were held in 1905 by the members of the Medical Consultative Board, together with Mr. Fisher, oculist, and independently by Dr. Louis Parkes, the sanitary expert, and again in 1910 by Dr. Louis Parkes and Dr. A. E. Russell. Practically all the alterations and improvements recommended in the reports of these commissions have been carried out. Further, from time to time other medical men have visited and reported on Osborne. It is not considered necessary to adopt now the suggestion contained in the last sentence of the noble lord's question.

Sequence of Illnesses in Metropolitan Asylums Board Hospitals.

Mr. TOUCHE asked the President of the Local Government Board whether he was aware that A. B., aged 3 years, who was removed to the Metropolitan Asylums Board Fever Hospital, Homerton-grove, on or about Oct. 9th last, suffering from scarlet fever, was subsequently reported to be doing well, then to have contracted chicken-pox, then to be quite well again and soon to be discharged, and then to be suffering from diphtheria; would he say whether a sequence of illnesses was common in the experience of the hospitals of the Metropolitan Asylums; and would he cause inquiries to be made as to the possibility of adopting improved methods of treatment, especially as regards the exposure of convalescents to risk of infection.—Mr. HERBERT SAMUEL furnished the following written reply: I am informed by the managers of the Metropolitan Asylums Board that A. B., age 2½, was admitted to the Eastern Hospital, Homerton, on Oct. 10th, certified to be suffering from scarlet fever. The attack was mild and she was placed in a ward of 20 beds reserved for scarlet fever patients. On Dec. 11th she developed chicken-pox, which there is no doubt at all was introduced into the ward by a patient from outside who was admitted suffering from scarlet fever and also incubating chicken-pox, which shortly afterwards developed. A. B. was promptly isolated, along with two other patients who were suffering from scarlet fever and chicken-pox (all three being removed from the same ward). On Feb. 22nd A. B. showed signs of diphtheria and from that date she has been in a separation ward by herself. I am also informed that post-scarlatinal diphtheria is unfortunately not uncommon, in fact there are some grounds for stating that an attack of scarlet fever predisposes to an attack of diphtheria. Such cases of diphtheria occurring in a scarlet fever ward may be due to an unrecognised case of diphtheria or to the presence in the ward of a carrier case. Such cases are quite frequent among school children, and it is possible that A. B. was herself a carrier case and that the diphtheria bacilli in her throat became active after her prolonged illness. No other case of diphtheria has occurred in either of the wards in which she was treated. In reply to the second paragraph of the honourable Member's question, I am informed that it is quite uncommon to have such a sequence of illnesses in the Metropolitan Asylums Board's hospitals, and even secondary diseases are relatively uncommon, especially when one considers the frequency with which children are exposed daily to infection in schools and crowds. The ratio of the following complications of scarlet fever cases in 1913 (the latest return available) and 1903 respectively was per 100 cases:—

	1903.	1913.
Diphtheria	2·32	1·36
Chicken-pox	2·36	1·48

In reply to the third paragraph, I may say that the question of improved methods of treatment is at no time lost sight of by the managers and their advisers, and the figures given above show that the structural and other provision which has been made to reduce the risk of cross-infection to which all fever hospitals are liable has not been unsuccessful.

Uncertified Mental Patients.

Mr. ALDEN asked the President of the Local Government Board whether he was prepared, in accordance with the tenor of the memorial signed by 330 Members of Parliament and 236 doctors which was presented to him last July, to grant permissive powers to the London County Council and other county councils to form a committee to manage and maintain a hospital which uncertified mental patients might enter voluntarily to receive the early treatment most conducive to their cure.—Mr. HERBERT SAMUEL wrote in reply: I would refer my honourable friend to my reply to a similar question on March 1st. I have no authority to confer on county councils the powers suggested in the question, but my honourable friend will see on reference to the London County Council (General Powers) Bill that the County Council are seeking powers to receive in a hospital cases of the kind mentioned.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANGUS, WILLIAM, M.D. Aberd., D.P.H. Cantab., has been appointed Acting Medical Officer of Health for Leeds.

BLUMFELD, JOSEPH, M.B., B.C., Cantab., has been appointed an Honorary Anæsthetist to King Edward VII.'s Hospital for Officers.

CARRINGTON, G. H., M.R.C.S. Eng., D.P.H., has been appointed Temporary Assistant School Medical Officer to the Durham Education Committee.

CLAPHAM, E. W., M.R.C.S., L.R.C.P. Lond., has been appointed an Honorary Anæsthetist to King Edward VII.'s Hospital for Officers.

COLLINGS, D. W., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Southwold District of the county of Suffolk.

HOBHOUSE, E. W. N., M.B., B.Ch. Oxon., has been appointed Resident Medical Officer at the City of London Hospital for Diseases of the Chest, Victoria Park, N.E.

HYNES, LOUIS A., L.A.H. Dub., has been appointed Temporary Assistant School Medical Officer for Torquay.

LOW, V. WARREN, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed External Examiner in Surgery at the University of London.

MAGEE, J. R., L.R.C.P. & S. Irel., has been appointed Port Medical Officer at Londonderry.

ROSS, R. H., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Clogher District of the county of Tyrone.

SMITH, R. TRAVERS, M.D. Dub., F.R.C.P., has been appointed Professor of Materia Medica, Therapeutics, and Pharmacy at the Royal College of Surgeons in Ireland.

SPENCE, R. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Stewartstown District of the county of Tyrone.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—Locum Tenens House Surgeon.

ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with residence, board, &c.

BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer. Salary £120 per annum, with board, residence, and laundry.

BETHNAL GREEN INFIRMARY, Cambridge-road, N.E.—Assistant Medical Officer. Salary at rate of £280 per annum, with apartments, board, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRMINGHAM, CITY MENTAL HOSPITAL, Winson Green.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.

BIRMINGHAM GENERAL HOSPITAL.—Honorary Surgeon. Also an additional Assistant Surgeon. Salary at rate of £50 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—Two House Physicians. Salary at rate of £80 per annum, with board, apartments, washing, and attendance.

BOLTON INFIRMARY AND DISPENSARY.—Senior House Surgeon and Second House Surgeon. Salary £230 and £200 per annum respectively, with apartments, board, and attendance.

BOOTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons. Salary £150 and £130 per annum respectively, with residence, board, and laundry.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary £100 per annum, with board, lodging, washing, &c.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

BROOKWOOD, SURREY COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £250 per annum, with board, lodging, and laundry.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.

CAMBERWELL, CONSTANCE-ROAD INSTITUTION, East Dulwich, S.E.—Temporary Resident Medical Officer. Salary at rate of £350 per annum, with apartments, board, washing, &c.

CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.

CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.

CARLISLE, CUMBERLAND INFIRMARY.—House Physician for six months. Salary as arranged.

CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.—Resident House Surgeon. Salary £50 per annum, with board and residence.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.

CHESTERFIELD, BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.

COLCHESTER, ROYAL EASTERN COUNTIES' INSTITUTION FOR IMBECILES AND THE FEEBLE-MINDED.—Female Medical Officer. Salary at rate of £200 per annum, with board, apartments, attendance, and washing.

DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £170 per annum, with board, residence, and laundry.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon. Salary £120 per annum.

DUNDEE ROYAL INFIRMARY.—Resident Medical Officers. Salary £100 per annum.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, residence, and laundry.

GLASGOW, CORPORATION OF THE CITY OF.—Vacancies among Junior Resident Medical Staff of City of Glasgow Fever Hospitals. Salary at rate of £160 per annum. Also Assistant Bacteriologist (two vacancies). Salary £250 per annum.

GRANGE-OVER-SANDS, WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—First and Second Assistants to Medical Superintendent. Salary £250 and £200 per annum respectively, with apartments, board, and laundry in each case.

GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HEREFORD COUNTY AND CITY ASYLUM.—Assistant Medical Officer, unmarried. Salary £250 per annum, and all found except stimulants.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas. Also Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board, residence, &c.

HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £80 per annum.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board and laundry.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £150 per annum, with board, &c.

ITALIAN HOSPITAL, Queen-square, W.C.—House Surgeon for six months. Salary £80 per annum, with board and residence.

LEEDS, GENERAL INFIRMARY.—Resident Medical Officer for six months at Ida and Robert Arthington Hospitals. Salary £60 per annum, with board, residence, and laundry.

LEICESTER ROYAL INFIRMARY.—Ophthalmic House Surgeon, &c. Salary at rate of £100 per annum, with bonus, board, apartments, and washing.

LIVERPOOL COUNTY ASYLUM, Rainhill.—Temporary Assistant Medical Officer. Salary £6 6s. per week, with apartments, board, attendance, and washing.

LIVERPOOL ROYAL INFIRMARY.—Two House Physicians, Three House Surgeons, and One House Surgeon to Gynæcological Department, all for six months. Salary at rate of £60 each per annum.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Surgeons and One House Physician, each for six months. Salary at rate of £60 per annum, with board and residence.

MACCLESFIELD, CHESHIRE COUNTY ASYLUM, Parkside.—Junior Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.

MANCHESTER, ANCOATS HOSPITAL, Mill-street.—House Physician. Salary £80 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department, for six months. Salary £100 per annum.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER, EAST LANCASHIRE TERRITORIAL FORCE.—Officers in East Lancashire (Second Line) Field Ambulance.

MANCHESTER, MONSALL FEVER HOSPITAL.—Second and Third Medical Assistants. Salary £175 and £150 per annum respectively, with board, lodgings, and washing.

MERTHYR TYDFIL COUNTY BOROUGH.—Assistant School Medical Officer. Salary £300 per annum.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.

NEWPORT (MON.). ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORTH RIDING OF YORKSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon. Salary £150 per annum, with board, lodging, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, washing, and attendance.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician for six months. Salary £100 per annum, with board, residence, and washing.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male and Female House Physicians and House Surgeons for six months. Board, lodging, and washing provided. Also Acting Assistant Physician to have Care of Out-patients. Also Female Senior Obstetric Assistant. Salary £75 per annum, with board, lodging, and washing. Also Female Junior Obstetric Assistant. Board, lodging, and washing provided.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence. Also Dental Surgeon.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100, all found.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William street, West Strand, W.C.—Assistant House Surgeon for six months. Salary at rate of £50 per annum.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—House Surgeon, Junior House Surgeon, and Casualty House Surgeon. All for six months. Salary at rate of £100 per annum each, with bonus, board, and residence.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £300 per annum, with apartments, attendance, and rations.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SECOND EAST ANGLIAN FIELD AMBULANCE.—Medical Officer. Pay and allowance as in Regular Army.

SHEFFIELD CITY HOSPITALS (INFECTIOUS DISEASES AND TUBERCULOSIS).—Second Assistant Medical Officer. Salary £225 per annum, with board, apartments, attendance, and washing.

SHEFFIELD ROYAL HOSPITAL.—Female Assistant House Surgeon and Female Assistant House Physician. Salary £85 and £80 per annum respectively, with board, residence, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SHEFFIELD UNIVERSITY.—Joseph Hunter Chair of Pathology.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £180 per annum, with board, washing, and residence.

STOCKPORT UNION, STEPPING HILL HOSPITAL.—Resident Assistant Medical Officer. Salary £250 per annum, with apartments, rations, &c.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Physician and House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and washing.

SUNDERLAND, ROYAL INFIRMARY, CHILDREN'S HOSPITAL.—Female Resident Medical Officer for six months. Salary £100 per annum, with board, residence, and laundry.

SWANSEA UNION.—Resident Assistant Medical Officer. Salary £295 per annum.

TAUNTON.—Medical Officer of Health for Urban District of Wellington, Somerset; Medical Officer of Health for Rural District of Taunton; Medical Attendant, Isolation Hospital, Taunton; and Poor-law Medical Officer and Public Vaccinator for Taunton St. James District. Salary for combined appointment £450 per annum, with expenses, &c.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

UNIVERSITY OF LONDON.—University Chair of Physiology at St. Bartholomew's Hospital Medical School. Salary £600 per annum.

WAKEFIELD, CLAYTON HOSPITAL.—Female Junior House Surgeon. Salary £120 per annum, all found.

WANDSWORTH UNION INFIRMARY, St. John's-hill, Clapham Junction, S.W.—Assistant Medical Officer, unmarried. Salary at rate of £5 5s. weekly, with board, lodging, and washing.

WEST BROMWICH COUNTY BOROUGH EDUCATION COMMITTEE.—Female School Medical Officer. Salary £300 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST HAM UNION INFIRMARY, Whipps Cross-road, Leytonstone, N.E.—Second Assistant Resident Medical Officer. Salary £250 per annum, with usual residential allowances.

WEST RIDING OF THE COUNTY OF YORK, SCALEBOR PARK ASYLUM, Burley-in-Wharfedale.—Assistant Medical Officer. Salary £250 per annum, with rooms, board, attendance, and washing. Or Locum Tenens. Salary £5 5s. per week.

WESTMINSTER CITY UNION INFIRMARY, Fulham-road, S.W.—Third Assistant Medical Officer. Salary £140 per annum, with board, residence, and washing.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Female House Surgeon. Salary £150 per annum, with board, lodging, and attendance.

WOMEN'S HOSPITAL FOR CHILDREN, 688, Harrow-road, W.—Assistant Physician and Assistant Surgeon. Also Anæsthetist. Salary £10, with possible emoluments of £75.

WORCESTERSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £350 per annum. Also Assistant Tuberculosis Officer. Salary £350 per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Carnforth, in the county of Lancaster.

Births, Marriages, and Deaths.

BIRTHS.

BROAD.—On March 4th, at Rodney-street, Liverpool, the wife of W. H. Broad, M.D., B.S., of a son.

SPARKS.—On Feb. 28th, at Whitley Bay, the wife of Dr. J. P. Sparks, of a son.

TRAILL-THOMSON.—On Feb. 26th, at The Parade, Leamington, the wife of Dr. W. Traill-Thomson, of a daughter.

MARRIAGES.

BOYS STONES—GIBBS.—On Feb. 23rd, at St. Saviour's Church, Torquay, William Boys Stones, B.A., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., to Florence Maud, second daughter of J. T. Gibbs, of Torquay.

GOODWIN—RUDHALL.—On Feb. 18th, at St. Peter's, Belsize-square, Lieutenant Aubrey Goodwin, R.A.M.C., to Elsa, daughter of the late John P. Rudhall and Mrs. Rudhall, of Belsize Park-gardens.

DEATHS.

ELLIOTT.—On Feb. 26th, at Sussex-street, Winchester, Gilbert Elliott, M.R.C.S., L.R.C.P., D.P.H., D.T.M., aged 44 years.

HARNETT.—On March 1st, at Belvedere House, Barnet, suddenly, William John Harnett, F.R.C.P. Edin., late Surgeon-Major, 22nd Middlesex R.V., aged 70 years.

MCALLUM.—On Feb. 26th, Donald C. A. McAllum, M.B., C.M.

RICHARDS.—On March 5th, killed in action, at Neuve Eglise, Francis Graham Richards, Major, Royal Army Medical Corps.

SIEVEKING.—On March 10th, at Devonshire-terrace, Hyde-park, W., Jane, widow of Sir Edward Sieveking, M.D. Edin., F.R.C.P. Lond., in her 90th year.

STUART.—On March 9th, the result of a motor accident, Francis Arthur Knox Stuart, B.A. Camb., L.S.A. Lond., Senior Assistant Medical Officer, Graylingwell Hospital, Chichester, son of the late Major Burleigh Stuart, of Omagh, and of Mrs. Stuart, Ranelly, Crowborough, aged 39 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SIR THOMAS LONGMORE AND THE CARE OF OUR WOUNDED.

IN THE LANCET of Oct. 3rd, 1914, we published a leading article on the Care of Our Wounded, in which we mentioned that the scheme for the care of our wounded was laid down many years ago by Sir Thomas Longmore, and that it lent itself to various developments. In his address before the Section of Military Surgery and Medicine of the International Congress of Medicine held in London in 1881[1] Sir Thomas Longmore finished by saying: "The sketch I have laid before you of the existing arrangements for ensuring help and skilled attention to the wounded in case of this country unhappily becoming involved in war has been unavoidably a superficial and imperfect one, and I must apologise for its incompleteness." Those who are studying the improvements of ambulance transport in the various competitions that have been recently announced might be interested to look at Sir Thomas Longmore's interesting book on ambulances published in 1869, with its voluminous information and illustrations of inventive enterprise.

THE METRIC SYSTEM.

To the Editor of THE LANCET.

SIR,—With reference to your comments of March 6th (p. 506) on a possible danger in connexion with the metric system in prescribing may I suggest that during the period of transition it would hardly be fair to leave the onus of the transposition of formulæ to rest entirely on the dispenser. Since the metric system became official I have employed both formulæ, one on the left and the other on the right hand margin of the prescription. I think that practice might with mutual advantage be adopted in the immediate future.

I am, Sir, yours faithfully,

Harley-street, W., March 8th, 1915. W. BEZLY THORNE.

CENTIGRADE AND FAHRENHEIT.

To the Editor of THE LANCET.

SIR,—Your correspondents who wish to know an easy way of changing Centigrade into Fahrenheit would find the following method both simple and accurate. Double the number of C. degrees, deduct a tenth and add 32. Such a calculation can be made without the aid of pen and paper.

I am, Sir, yours faithfully,

AUG. HADLEY.

Craven-street, Strand, W.C., March 5th, 1915.

"SHELL FUMES AND PNEUMONIA."

IN a letter to the *Times* under the above heading Sir William Ramsay suggests that the acute pneumonia which, it is reported, often develops after a man has been exposed to the fumes of a bursting shell are due to nitric peroxide. As this gas is readily soluble in water it may be rendered harmless by passing it through a moist cloth. Such a precaution is adopted by the workers in bleaching-powder chambers to keep the chlorine from entering the lungs. To guard against a sudden exposure to gas a well wrung-out wet handkerchief or any bit of cloth is stuffed into the mouth and air breathed through it, the return air being discharged through the nose. Sir William Ramsay's suggestion should be generally known.

A NEW METHOD OF STERILISATION.

To the Editor of THE LANCET.

SIR,—In your issue for Jan. 23rd appears an annotation on an article in the *Gazzetta degli Ospedali* by Dr. Guido Cremonese, drawing attention to the value of iodobenzine as a disinfectant. May I be permitted to record my own three years' observations on the use of that antiseptic product?

Some three years ago I was operating upon a valuable pedigree Devon bull for a subparotideal actinomycotic growth, the capsule of which, distended with pus, was very attenuated; and in the process of dissection and removal the virulent pus escaped, contaminating the surgical wound, which in my experience nearly always leads to a recurrence unless active measures are adopted to counteract the infection. I had an ounce of tincture of iodine with me, but the cavity having a capacity of 300–500 c.c. this dressing for packing would not go far. I obtained about 10 oz. of petrol from my car and mixed it with the tincture of iodine, and I confess to no small degree of disappointment when I recognised the two did not mix well.

[1] THE LANCET, August 6th, 1881, p. 240 et seq.

However, I had the cavity well flushed out with a strong solution of citrate of soda and then firmly plugged with tampons soaked in the iodine and petrol solution. While applying the dressing I was greatly struck with the amount of powerful vapour emanating from the dressing, which had a most irritating effect upon one's eyes. The operation wound healed well, and I saw the patient quite recently and there was no sign of a recurrence. Since then I have used the iodine and petrol dressing as a matter of routine in my practice, amounting in all to well over 300 patients, in such cases as fistulous wounds and deep-seated punctures, surgical cavities which have been contaminated, also for the sterilisation of skin prior to operations in neurectomies, tenotomies, ovariotomies, hysterectomies, and the removal of neoplasms.

The great therapeutical value of the dressing appears to be summed up in its powers of penetration, and unlike so many antiseptics it does not retard the phagocytic action or lower the bacteriotropic powers of the fluids flushing the wounds. For this reason the dressing has been found most useful in wounds infected with such virulent bacteria as bacillus œdematis maligni, B. chauvæi, B. tetani if applied early and thoroughly enough. Finally, by reason of its cheapness it should commend itself to veterinary practice, at least when in some cases several ounces require to be used at each dressing.

I am Sir, yours faithfully,
W. M. SCOTT, F.R.C.V.S.,
Consulting Veterinary Surgeon for the
March 4th, 1915. County of Somerset.

THE "CRAIGLEITH HOSPITAL CHRONICLE."

THE third monthly issue (February) of the *Craigleith Hospital Chronicle* contains a portrait of Surgeon-General G. D. Bourke, C.B., the Deputy Director of Medical Services in Scotland. One of the results of the war has been the very natural desire on the part of those not in the Services or who have only recently joined to know the meaning of the thousand and one military terms that constantly occur in the newspapers and elsewhere, and the serial articles in this *Chronicle* supply this kind of information. The Notes on the Army this month deal with the Artillery. The magazine may be obtained, price 6*d.*, from the Second Scottish General Hospital, Craigleith, Edinburgh.

WHAT IS NORMAL TEMPERATURE?

To the Editor of THE LANCET.

SIR,—In THE LANCET of March 6th (p. 530) "Grimpeur" speaks of "the daily range of temperature in health—namely, from 97° to 98·4°." Surely if that were the case the normal line on our charts and thermometers should stand at 97·7°. I have always supposed the daily range to extend on either side of 98·4°—say from 97·8° to 99°—and so should regard 99° as a less abnormal figure than 97°.

I am, Sir, yours faithfully,
H. ALSTON, M.D.
West Norfolk and Lynn Hospital, King's Lynn,
March 8th, 1915.

"WHAT EVERY SOLDIER OUGHT TO KNOW."

THIS little work consists mainly of extracts from official text-books and training manuals, and is an attempt to provide the private soldier with as much rudimentary knowledge of his profession as may conveniently be conveyed in print and in the smallest possible compass. Care has been taken to convey the spirit as well as the letter of the authorised books of instruction, and the few sentences about preservation of health are clear and to the point. It can be obtained from Humphrey Milford, Oxford University Press, Amen Corner, London, E.C., price 2*d.*

TUBERCULOSIS SANATORIUMS.

A USEFUL list of sanatoriums and other residential institutions approved by the Local Government Board under the National Insurance Act for the treatment of persons resident in England (excluding Monmouthshire) who suffer from tuberculosis has been issued by the Board and revised up to Feb. 20th. It may be obtained, price 1*d.*, either directly or through any bookseller, from Messrs. Wyman and Sons, Limited, 29, Bream's-buildings, Fetter-lane, London, E.C.; H.M. Stationery Office (Scottish Branch), 23, Forth-street, Edinburgh; or E. Ponsonby, Limited, 116, Grafton-street, Dublin.

Specimen sheets of a "Sanatorium Case Register," designed by Mr. G. M. Mayberry, B.A., L.R.C.P., have also reached us. The size of each page is 11½ in. wide by 16½ in. deep. Two opposite pages form a record. The upper half of the left-hand page contains spaces for the necessary data concerning the patient up to and at the time of admission. The lower half shows duplicated clinical charts of the thorax, front and back, and of the larynx, in order to record for comparison the conditions on admission and on discharge. Spaces are also left for results of treatment, remarks, urine and sputum, and tuberculin tests. The opposite page is left blank for notes, with a tabulated space for after-history six months, one year, and each year afterwards up to ten years. The books, which are supplied strongly bound with index to contain from 50 to 200 forms at prices from £1 5*s.* to £2, are published by Mr. H. K. Lewis, 136, Gower-street, London, W.C.

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—I should be much obliged if any of your correspondents would tell me of a home which would take a spinal case (fracture). No bedsores or urinary or rectal trouble. The patient is a collier and he is entitled to about £1 a week compensation. He is single, but his mother is in service—a caretaker in a London flat—and cannot therefore look after him.—I am, Sir, yours faithfully,

H. NEVILLE TAYLOR, M.A., M.D., F.R.C.S.,
Surgeon, Ebbw Vale Hospital.
Hillside, Ebbw Vale, Mon., March 8th, 1915.

S. J. R.—All the following small manuals on massage have been favourably reviewed in our columns on the dates indicated. "Lessons on Massage," by Margaret Palmer, Baillière, Tindall, and Cox, 1912, price 7*s.* 6*d.* net (April 6th, 1912); "Massage, its Principles and Technic," by Max Böhm, edited by Dr. Painter, W. B. Saunders Company, 1913, price 7*s.* 6*d.* (Nov. 8th, 1913); "Text-book of Massage and Swedish Gymnastics," by Dr. T. D. Luke, Scientific Press, 1913, price 2*s.* 6*d.* (June 14th, 1913); "Massage and Swedish Movements," by Kurre W. Ostrom, H. K. Lewis, 1912, price 3*s.* 6*d.* (Oct. 19th, 1912); "Massage," by Mabel M. Pireau, revised by Dr. Gurney Champion, Scientific Press, 1912, price 2*s.* 6*d.* net (Feb. 1st, 1913).

H. S. (Beckenham).—The report forwarded by our correspondent has already appeared in full in THE LANCET.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Bakerian Lecture: Prof. W. H. Bragg: X Rays and Crystals.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—W. Langdon Brown, Philip Hamill, J. Gordon Sharp): at 4.30 P.M.

Professor A. R. Cushny, M.D., F.R.S.: (1) Notes on Diuresis; (2) Notes on the Antagonism of Drugs.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for the Election of Candidates to the Fellowship.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawfurd, Leonard G. Guthrie): at 5 P.M.

Professor A. R. Cushny, M.D., F.R.S.: William Withering.
Dr. J. A. Nixon: Thomas Baynton.
Dr. George C. Peachey: William Bronfield.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. G. Pernet: (1) Erythema Induratum (Bazin); (2) Iodide Eruption and Syphilis.
Dr. W. K. Sibley: Case for Diagnosis.
Dr. S. E. Dore and Dr. Kinnier Wilson: Case for Diagnosis.
Dr. H. G. Adamson: Macular Atrophy.
Mr. H. C. Samuel (introduced): Linear Nævus.

FRIDAY.

SECTION OF ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 8.30 P.M.

Clinical Meeting.

Members wishing to show cases, instruments, lantern slides, or skiagrams for diagnosis, are requested to send a short account of these as soon as possible to the Senior Hon. Secretary, Mr. Gilbert Scott, 6, Bentinck-street, W., so that a list may be sent to the Members before the Meeting.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Cases sent for Consultation. Demonstration of Pathological Specimens. Clinical Cases will be shown by Dr. M. Dockrell, Dr. J. L. Bunch, Dr. W. K. Sibley, Dr. S. Gooding, and Dr. C. H. Mills. 5 P.M., Paper:—Dr. A. T. Bremner: The Importance of Detail in the Treatment of Diseases of the Skin.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Paper:—Dr. F. L. Pyman: Some Interesting Drugs of Tropical Origin.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY.—5 P.M., Milroy Lecture:—Dr. E. L. Collis: Industrial Pneumonoconioses, with Special Reference to Dust-phthisis.

THURSDAY.—5 P.M., Lumleian Lecture:—Dr. S. Martin: Non-ulcerative Infections of the Colon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

WEDNESDAY, AND FRIDAY.—5 P.M., Prof. R. Farrant: The Effect of Toxins on the Tissues.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

THURSDAY.—3 P.M., Dr. A. Strahan: The Form and Structure of the London Basin. (Lecture I.)

FRIDAY.—9 P.M., Prof. G. H. Bryan: The Modern Piano Player—Scientific Aspects.

SATURDAY.—3 P.M., Prof. Sir J. J. Thomson, O.M.: Recent Researches on Atoms and Ions. (Lecture V.)

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Mr. H. Platt: Internal Derangements of the Knee-joint.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1914 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 10th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 4	30·00	S.W.	...	69	55	45	47	47	Raining
,, 5	30·11	S.	...	83	55	47	48	50	Overcast
,, 6	30·04	S.W.	...	83	58	47	46	47	Cloudy
,, 7	30·09	N.W.	0·03	71	49	44	43	46	Cloudy
,, 8	30·11	N.E.	...	76	42	37	36	38	Cloudy
,, 9	30·42	N.E.	...	74	45	36	34	36	Cloudy
,, 10	30·34	N.	...	57	45	36	37	39	Overcast

The following magazines, journals, &c., have been received:—British Dental Journal, Medical Journal of South Africa, Magazine of the London (Royal Free Hospital) School of Medicine for Women, Proceedings of the Royal Society of Medicine, Cleveland Medical Journal, American Journal of Tropical Diseases and Preventive Medicine, Man, Journal of Tropical Medicine and Hygiene, Bulletin of Johns Hopkins Hospital, Medicinskt Arkiv, Transactions of the Society of Tropical Medicine and Hygiene, Concrete, Quarterly Journal of Experimental Physiology, Indian Medical Gazette, Dublin Journal of Medical Science, Canadian Medical Association Journal, Asylum News, Journal of Physiology, Public Health, Archives of Roentgen Rays, Edinburgh Medical Journal, &c.

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